American Engineer

OCTOBER, 1950

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IN THIS ISSUE . . .

ENGINEERS CAN ASSIST OUR AGING POPULATION

A HEALTHIER AND HAPPIER FUTURE
Various Forces Have Worked Upon Our Population

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American Engineer

OCTOBER 1950

► **COVER STORY. Engineers Can Assist Our Aging Population** 5

By M. Allen Pond, Chief, Division of Engineering Resources, United States Public Health Service.

Engineers and the Fire Prevention Problem ... 8

By John A. Neale, Chief Engineer, National Board of Fire Underwriters.

Let's Take Warning From History 11

By Allison C. Neff, National Director from Ohio.

Announcing NSPE's Public Relations Program .. 12

The 1-2-3 of Speech Making 14

Regular Features

Editorials 4
What They're Saying 16
Accent On Activity 19
Book Looks 20
Letters to the Editor 21
Around the Nation With Our Members 23

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"The fundamental mark of a profession is the recognition of a public obligation and a moral responsibility by a member of the craft, coupled with intellectual training in the broad sense, a habit of intellectual discipline, and the acquisition of a special competence fitted to the practice of the profession."

—Dr. Ralph Casey,
Director of the School of Journalism, Univ. of Minn.

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EDITORIALS

Which Road? . . .

There is a story about the farmhand who gave up his job of sorting large and small potatoes because it taxed his mind with, "decisions, decisions, decisions."

As unpleasant as it may be, the engineering profession is challenged to make a decision as important as any it has ever made. The question is: Shall the engineering profession advance its economic status through means of unionization and collective bargaining, or shall it proceed along individual and professional lines?

After long study over a period of years NSPE has made its choice. In a policy statement adopted this past June, NSPE has said definitely that it is unprofessional for a professional engineer, professionally employed, voluntarily to join a heterogeneous labor union. The next point in the NSPE policy statement is that collective bargaining by professional engineers is to be deplored, although organizations for this purpose may, for the present, be condoned under certain circumstances. This policy follows that adopted in 1948 in which it was stated that, "the individual responsibility and independent judgment required of a Professional Engineer are incompatible with the regimentation fundamentally inherent in unionization."

Thus, NSPE has clearly made its choice. It believes that the welfare of the Professional Engineer will be better served in the long run by abstaining from the labor union group approach. Inherent in this policy is the belief that the members of the profession can progress in their chosen field by sticking closely to professional concepts of individuality and according to individual ability.

All do not agree with this basic premise. There are those who honestly believe that the NSPE policy is "in the clouds" and that the profession will be wise to submit to the union movement and advance their economic status on that basis. There are others who believe that the two concepts are compatible—that professionalism can be maintained and at the same time collective bargaining tactics can be employed.

One of our distinguished colleagues of the engineering press, *Engineering News-Record*, has taken NSPE to task for its policy. The *ENR* editorial (issue of August 17th) should be read by every professional engineer in the nation, as should NSPE's statement. (See August issue, AMERICAN ENGINEER). *ENR* says that there are factors that may make voluntary participation by engineers in collective bargaining desirable as a means for protecting their professional position and that collective bargaining can be conducted in an honorable manner. *ENR* also fears that the NSPE policy may be used by industrialists to exploit engineers, particularly the younger members of the profession. The answer to the latter proposition is found in the NSPE statement itself which declared, "when engineers are treated collectively by an employer they may be compelled to deal with him on the same basis."

Leaving aside the details in difference of opinion, the fundamental question is clear. Which road shall the profession take? NSPE is convinced that we must face the hard fact that we cannot have our cake and eat it too. Either we must stand by professionalism and renounce collective bargaining (except in special cases), or we must submit to the principle that immediate economic gain through group pressure is preferable to professional status.

The question will not be decided today, next month, or next year. But the problem cries for a solution and we cannot put off the decision much longer, even if we want to. No organization of professional engineers and no magazine of the engineering profession will make the decision. It is up to the members of the profession to do so and to start thinking hard and earnestly about it.

Wyoming, '07 to D. C., '50 . . .

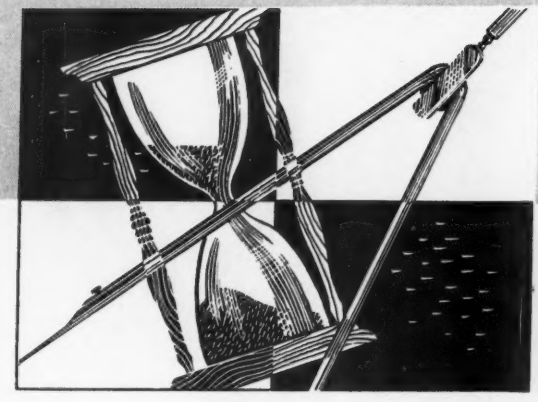
On September 20, 1950, the White House released the news that the District of Columbia had an engineering registration law. It is significant that this law should be signed by the President of the United States, for it marks the end of an era. From 1907 in Wyoming to 1950 in the District of Columbia, the campaign has gone forward to bring about the basic legislation needed for protection of the public safety, health, and welfare through competent engineering service.

While the D. C. law marks the end of an era—the first phase—it also marks the challenge of the future. Now it is up to the engineering profession to build upon this body of law which extends to every state, territory, possession, and district of the United States. Much hard work lies ahead as the profession moves into the new phase of improving and strengthening the engineering registration laws.

Looking back, many recalled the great efforts made by the State Societies of the NSPE toward forging together this final link in the registration chain. All knew that the District of Columbia Society and the local Engineers' Council gave much. Many talked of helpful senators and representatives, of clerks and secretaries, and the others who form the world-of-its-own that is Capitol Hill. Many individuals and groups were mentioned, but one man's name was recalled again and again. He was the one person all the rest would have liked to have had with them to hear the news.

Fred W. L. Hill, Past President of the District of Columbia Society, and one-time chairman of NSPE's Legislative Committee, died in January, 1949. Thus ended an active life, a number of years of which were spent in fighting for a D.C. registration law. Fred Hill, according to those who knew him best, was the sort of leader who failed to let almost insurmountable obstacles deter him. He was also the sort of leader who continued to fight even when followers lost interest or became discouraged. Little wonder, then, that he almost single-handedly wrote the Registration Bill as it now stands. Little wonder that he could bring together in peaceful debate the warring factions of his own profession. A lesser man would not have had the tact, kindness or intelligence to have swayed the many members who sat around the conference tables. Engineer Hill, however, had so gained the respect of all who knew him that he was able to weld different opinions into one effective striking force.

Once Engineer Hill had his profession solidly allied behind him, he moved to Capitol Hill. There he was to taste defeat after defeat, but he still gratefully accepted the inches of progress he slowly won. By the time he passed away he surely must have known that victory was near at hand. Last week the victory came.



Engineers Can Assist Our Aging Population

By M. Allen Pond

Chief, Division of Engineering Resources, United States Public Health Service

CHANGE in the age composition of a population is always the result of the simultaneous action of complex factors. For example, and here professional engineers have contributed much, during the past half-century, when the sharpest recorded changes in life expectancy and average age at death occurred, the American people have enjoyed progressively higher standards of living and better nutrition. They have become better educated. Transportation has improved. The nation has become more urbanized. Advances in the medical sciences have made possible the prevention of some diseases, the cure of others, and better management of most. Not the least important factor has been the establishment of environmental barriers against the spread of disease.

On the debit side of the ledger there have been two world wars. Increased mechanization of the factory and home have increased accident hazards. New and deadly materials have been discovered and come into wide use. The tempo of life, both urban and rural, has increased.

We have had, then, a variety of forces—mostly beneficial—working upon the population. The net result has been that the average unit in the population has been made to live longer. However, as the average length of life has been extended, so too has the time over which the individual is exposed to the favorable and unfavorable conditions that influence his functions and development.

It so happens that the principal recognized hazards to health in the early part of life are found primarily in the environment, while those that are significant in later life seem to be largely personal. This may explain in part why the professional engineer, by establishing environmental barriers against the spread of communicable disease, has contributed directly to increased longevity. It suggests, also, that the physical environment may not be a direct etiological factor in organic disease. However, the problem of aging is not purely a biological one, but has large cultural, social and psychological implications as well.

What are some of the health problems associated with our aging population and what is the role of the engineer in relation to those problems? Well, as a baseline, we can say that it is important to recognize that the objectives in environmental health are (1) to establish physical barriers to prevent the spread of disease, and (2) to provide surroundings that

Modern design and construction tends to eliminate hazards affecting the aged.

will help maintain vital resistance and promote positive health and a sense of well-being. Now, because the professional engineer directs his attention not to people but to the physical environment in which they must live, we can already see how he fits into the picture.

LET us first consider cancer—a disease frequently attacking the aged. It is the artificial environment of our industrial society that has created many cancer producing substance. Soot and certain waste products from the fractionation and distillation of coal and petroleum, as well as the wastes from the smelting and processing of certain metals may produce cancer. Fully 90 per cent of the known environmental cancer producing substances never existed in dangerous concentrations until industrial processes brought workers into constant and close contact with them.

It is indulging in pure speculation to attempt to prophesy the role that the engineer may play in cancer control, but industrial engineers already are concerning themselves with the protection of workers against excessive exposure to known dangers. It may be too early to train large numbers of engineers in cancer control, but there should be no delay in interesting at least a few in this field.

In heart disease—our number one cause of death—the potential death toll has undoubtedly been reduced by communicable disease control and treatment of recognized heart ailments. Engineering control of health hazards has helped prevent the spread of infections known to be precursors of heart disease. Nevertheless, for practical purposes, little has been done to develop a physical environment in which those with heart afflictions may be protected against unnecessary additional cardiac damage. As a matter of fact, until we have more facts to draw on, it does not seem appropriate to reconsider building or design standards as a means to combat heart disease. However, an exception to this assumption is in the making at the present time. Attention recently has been directed to the sign of dissolved salts in water supply as they relate to the provision of salt free diet for cardiac patients. There is accumulating evidence that drinking water may be a source of sodium large enough to nullify attempts to restrict that element in the solid part of the patient's diet.

IT is impossible here to resist a temptation to draw an analogy between an important engineering research finding a quarter of a century ago and the role of the physical environment in heart disease. An engineer named A. N. Talbot demonstrated that relatively mild stresses applied repeatedly caused failure in railroad rails resistant to much greater stresses applied to rails a few times or continuously. Is it fair to assume that the stresses inherent in frequent, literally thousands of stair ascents may ultimately produce cardiac failure in persons with mild or unrecognized heart disease?

Let's turn to the much discussed subject of mental health. Certain characteristics of dwellings and working places are known to cause tensions, but there is insufficient evidence upon which the engineering profession could base activities aimed at controlling environmental hazards to mental health. It is likely that the physical environment per se seldom produces mental illness, although it may serve as a contributory factor by increasing the hazard of breakdown in persons on the threshold of mental illness.

Studies of the livability of low-rent dwellings have shown that inadequate storage space and unsatisfactory room layouts, among other factors, make housekeeping difficult and unpleasant. If we accept the premise that longevity implies more prolonged exposure to the continuing hazards of living, such harassments as these may be especially significant for older people. Recommendations for the design of housing for elderly persons should take these points into account.

A thorough knowledge of population statistics is basic for the planning of housing. Designers and builders of houses have not yet shown that they appreciate that changes in the age composition of the population are paralleled by changes in family composition and size. At both ends of the adult span of life, single-person families are more numerous than in the age group from 25 to 64. Except in large cities, little has been done to provide housing for one- and two-person families, particularly for those in the twilight years of life. Even in the best planned modern housing developments attention is rarely paid to design for elderly tenants.

THERE is wide agreement among students of the subject that housing for elderly people needs special consideration as to location, design, and equipment. In general, all new housing projects should contain provisions for persons of all age groups, and the able-bodied elderly should be housed with the rest of the community.

Older persons are ordinarily housed more safely in

single-story units than in dwellings containing stairs. It is not so widely realized that special attention should be paid to provision for warmth, layout for efficient and easy housekeeping, and accident prevention. It is desirable also to provide communal facilities and easy access to such neighborhood facilities as stores, churches, theaters, and public transportation. Furthermore, the question of elastic design (i.e., provision for easy modification of dwelling size to take care of changing family needs) has hardly been explored.

If housing plays any role in determining the health status of a community, it is obviously related to the health of old persons and the infirm.

Death rates from accidents traditionally have been highest in the age group 65 and over. In 1947 the accident death rate for persons in this age group was 286.8 per 100,000, of which fatal falls accounted for 59 per cent and motor vehicle mishaps represented 17 per cent. The accident death rate for persons 45 to 64 years old was 68.5 per 100,000. The number of permanent disabilities produced by accidents is significantly larger than the number of deaths.

More than 3 out of 4 fatal home accidents among persons 65 years of age or older are caused by falls, and in 1947 accounted for more than 15,000 deaths. These accidents occurred in various parts of the house, although the bedroom was the most frequent site.

A recent cover picture from the American Engineer (above) portrays a city before and after air pollution control. By controlling air irritants, engineers have eliminated a health hazard.

THE causes of accidents are manifold. In older persons especially, physical deficiencies and poor judgment are frequently cited as contributory causes. However, structural or mechanical defects that predispose to accidents should not be overlooked by the professional engineer concerned with accident prevention. In the design, construction, and maintenance of shelter for the aged and infirm, special attention should be given to the elimination of accident hazards.

Let us review another problem that crys out for the engineer's talent. It is atmospheric pollution. Although the bases for a large-scale attack on air pollution are insecure, experience in London, England, and Donora, Pa., during the late fall of 1948 focuses attention on the potential hazard presented by smog (i.e., a combination of smoke and fog).

Acute mass disasters from atmospheric pollution are spectacular events because of the resulting number of deaths and disabled persons encountered. However, such catastrophes occur rather infrequently and result from unusually massive exposures. In point of fact, they are of lesser importance than more widespread and less obvious injuries to health occasioned by the prolonged action of lower concentrations of atmospheric impurities on larger population groups. Nevertheless, Whipple many years ago pointed out that epidemics

(*Continued on page* 30)

Steps, steps, steps. Old and low cost type housing as shown above and below is so constructed that physical and mental strains are extremely evident. Accidents, of course, are prevalent.

The Waste In Lives and Property Continues . . .

Engineers and the Fire Prevention Problem

By
John A. Neale
Chief Engineer, National Board of Fire Underwriters

On Friday, May 19th, 1950, stevedores were busy at the port of South Amboy, New Jersey.

Two important shipments were being transferred from trains to lighters, for later transfer to the "Flying Clipper," a vessel which was loading other cargo at a terminal in Brooklyn. One shipment consisted of 8,000 boxes of anti-tank mines and 1,000 boxes of anti-personnel mines which were being shipped to the government of Pakistan. A separate shipment of gelatin dynamite was en route to a company in Afghanistan.

These hazardous shipments were not unusual for the port of South Amboy, which is the only terminal in the Port of New York where the transfer of explosives in quantity is allowed by municipal authorities. South Amboy had been used for that purpose for many years.

The shipment of mines was being handled by an explosives lighterage and stevedoring company with more than fifty years of experience in this highly specialized work.

At 7:26 p.m. that day, an explosion of tremendous violence occurred, caused by the simultaneous detonation of 150 tons of military explosives and gelatin dynamite. Thirty-one men were killed, and more than 350 residents of South Amboy and Perth Amboy were injured by the blast. Electric power failed, and property damage extended over a distance of 25 miles from the scene of the explosion. Damage was estimated at $10,000,000 or more.

It is always extremely difficult, if not impossible, to discover every pertinent fact in a catastrophe of this type, and a thorough investigation must be completed before the cause of the disaster can be determined.

But, upon the knowledge now available, it is possible to make some specific recommendations which would have value in reducing the danger of similar disasters in the future.

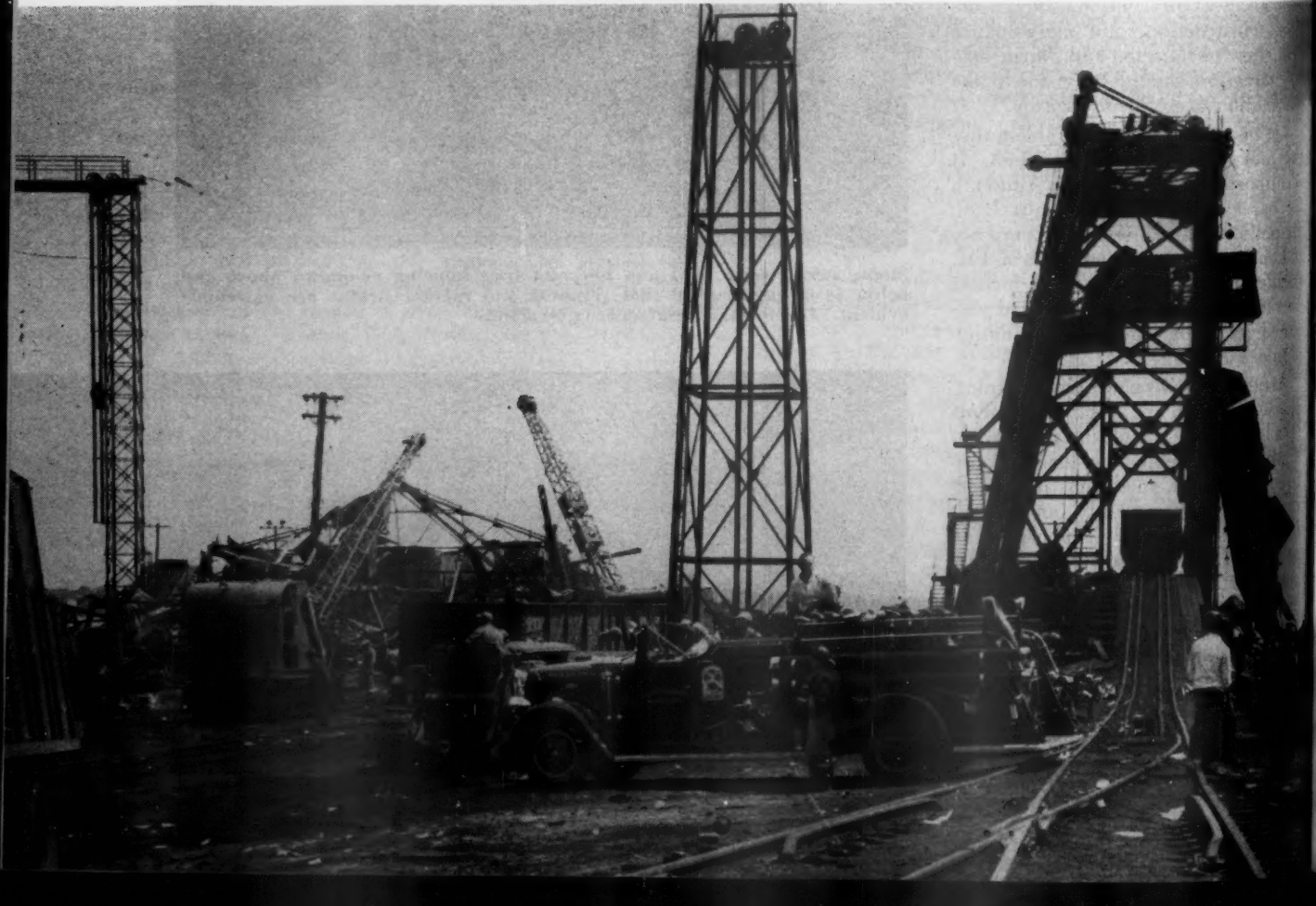
Such ports as South Amboy should be under the supervision of a port security officer or port warden, whose chief concern would be the preservation of life and property on the waterfront.

A conference of responsible authorities and transportation interests should be held to determine which ports are suitable for shipping explosives, and consideration should be given to the matter of designing port facilities scientifically for the specific purpose of handling explosives.

More frequent safety inspections of explosives shipments should be made during the manufacture, assembly, and loading operations, and carefully planned transportation schedules should be established for all shipments of explosives.

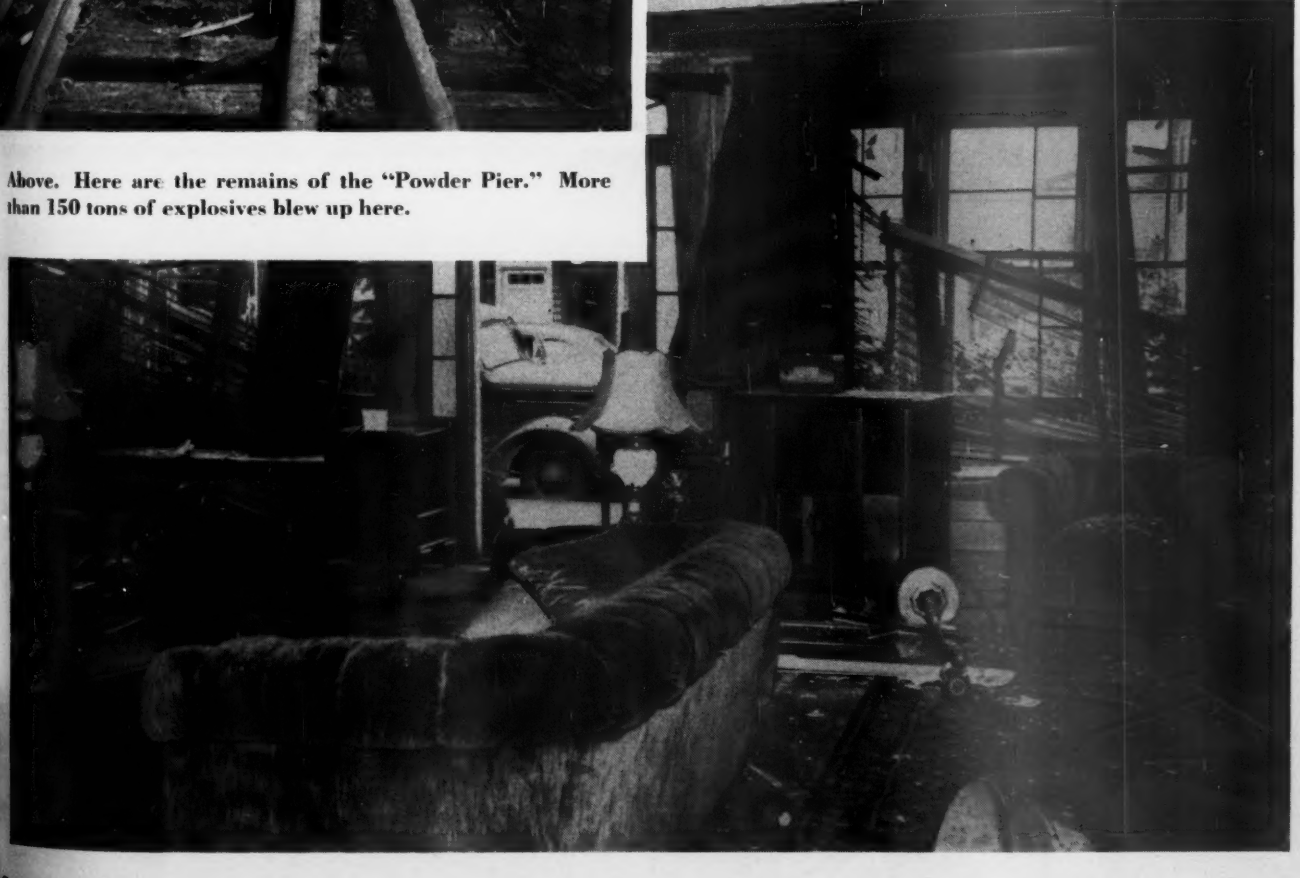
An educational program for training men engaged in handling and transporting explosives would also be valu-

In May, 1950, an explosion ripped through South Amboy, New Jersey, killing 31.



Here is typical blast damage (above and below) in the residential section of South Amboy. Engineers found that many buildings were constructed of highly combustible materials.

Above. Here are the remains of the "Powder Pier." More than 150 tons of explosives blew up here.



able.

These are a few of the lessons we have learned. Immediately after a disaster such as the one at South Amboy, interest in preventing a repetition of the death and destruction is intense. But public attention may quickly pass to other problems. It is the duty of the fire protection engineer to see that action is taken quickly to reduce the danger of similar catastrophes in the future.

Sometimes such a disaster brings a definite improvement. As an example, consider a catastrophe which occurred on April 4th, 1949, in St. Anthony Hospital in Effingham, Ill.

Bed-ridden patients lay there helplessly in that hospital as flames closed in around them. Patients who were able to move about did not know how to get out of the hospital safely. Many of them ran, terrified, through the blazing halls, and jumped out the first window they reached . . . to their deaths. Firemen said that none of the patients used the fire escapes, although some of the escapes offered a safe route to the ground.

As fire safety experts talked to survivors and examined the blackened ruins of the hospital the next morning, it became clear that those 74 lives could have been saved. In the case of this particular hospital, of course, the recommendations for improving fire safety came too late. But engineers felt it would be valuable to make a thorough study of the disaster, as a guide for the future.

A few simple precautions would have kept St. Anthony Hospital from becoming a death trap for new-born babies, the aged cripples and the others who died there.

The deficiencies at the St. Anthony Hospital were reviewed. The buildings had no automatic sprinkler system, which would possibly have snuffed out the fire entirely and saved 74 lives. There was no automatic alarm, and no watchman to arouse the patients. The hospital had only ten staff members on night duty to protect 128 patients, many of whom were bed-ridden and helpless. No organized staff drills for fire emergencies were held, and this possibly accounted for the startling fact that not one of the six fire escapes were used, even while patients were jumping out of windows to their deaths.

In addition to these obvious deficiencies, there were several structural hazards which could have been eliminated with a relatively small expenditure. The stairways were not constructed of—nor enclosed with—noncombustible materials, and were not properly cut off from the halls, although it would have been relatively simple and inexpensive to provide the necessary fire doors. The buildings also contained much combustible material, including a large quantity of combustible acoustical material.

There would be no point in reviewing these hazards a year and a half after the blaze in St. Anthony hospital, except to point out that the lessons of that disaster were not forgotten.

Shortly after the blaze, the National Board of Fire Underwriters and several other organizations joined in sponsoring an ambitious plan for a complete fire safety inspection of every hospital in the nation.

Those inspections have been underway for a number of months, and the work will continue until every hospital has received the benefit of expert advice on its fire and casualty problems.

It is reasonable to hope that such a program will make such a disaster as the St. Anthony fire less likely in the future. We recognize the countless ways in which fires can start, and we can never hope to achieve absolute safety from fire, but we should not accept that as a reason for lessening our efforts.

Engineers, who are aware of the hazards—new and old—which threaten lives and irreplaceable property, can serve the nation by insisting that the lessons we learn from disasters shall not be forgotten.

FIRE PREVENTION WEEK

President Truman has proclaimed October 8-14 to be Fire Prevention Week, and called on all Americans "in this critical period" to help keep the nation strong through the prevention of fires which needlessly destroy life and property. Professional engineers everywhere owe it to their profession and their communities to study local fire prevention problems and to take aggressive steps to eliminate hazards.

Shown below is typical blast damage to industrial properties located along waterfront.

Functional Groups Strengthen Ohio Society . . .

Let's Take Warning From History

By ALLISON C. NEFF
Director From Ohio

In the early days, so we are told, there was only one kind of engineer—the military engineer. As the roving, fighting bands of people conquered certain lands they settled in town and cities and required buildings, water and permanent bridges, thus the civil or *non*-military engineer came into being and through the middle ages up to the 19th century, these two branches of the profession were adequate to serve the needs of the race.

With the advent of The Industrial Revolution new types of engineers were needed because the increasing complexities and ramifications of engineering made it impossible for any one man to grasp or understand all of the new developments and to encompass the details of even one branch was all that could be expected of one individual.

In this era five major branches were recognized and societies were formed to embrace the engineers specializing in those branches. These societies gave their members a medium for exchange of information on their mutual problems and a meeting point for those men practicing within a given field. For some seventy-five years these societies were adequate to serve the profession suitably.

With the prodigious developments in the natural and applied sciences in the last twenty-five years we have seen an amazing growth in the number of engineering and technical societies until now their number may comprise a hundred or more. As one speculates on the reason for this growth in numbers he arrives at the conclusion that the five original societies did not afford the specialists in these new branches of the profession, the service, medium for expression and attention to their requirements which these specialists felt they needed. As a result a new society was formed. The NSPE is itself a manifestation of this process.

Although our Society is a young one, we should be profiting from the experience of the older groups and so adapt our program and structure that certain parts of our membership do not leave our ranks, form new societies and thus vitiate the forces and momentum which NSPE has gained.

Some cases of this tendency have already occurred. The County Engineers in two of our strongest State Societies felt that their interests were not being adequately served by those Societies. While they did not withdraw en masse, they did form a County Engineers Society and some individuals withdrew from the Professional Society while the remainder now have a divided interest.

In another of our strong state societies the engineers in private practice felt that the State Professional Engineering Society did not afford a medium to handle their problems. They are now in a process of forming a Society of Consulting Engineers in that state. It is hoped that they will be brought back into the fold of the State Professional Society.

Let us be warned by the foregoing experiences lest groups with specialized professional interests draw away from NSPE and the State Professional Societies, in an amoeba like growth, even as groups with specialized technical interests draw away from the Founders Societies.

In the structure of our Professional Society, we must make provision for a rallying point, affording a means whereby members with like specialized professional interests can gather to discuss their specialized problems.

The Ohio Society of Professional Engineers has met this problem with some success through the formation of "Functional Groups" within the Society. The following groups are now organized:

Public Utilities Engineers Section
Private Practice Engineers Section
Municipal Engineers Section
Highway Engineers Section
Engineers in Industry Section
County Engineers Section

Each Section has a Chairman, Vice Chairman, Secretary and Treasurer. The only formal meeting provided for these groups by the parent organization is at the Annual Meeting; during which, a full half day is allocated to them alone. Other meetings during the year may be called by the Chairman at his discretion.

Highway engineers represent one of the functional groups.

Here Are Other Facts:

The Chairmen of Functional Groups are members of The Board of Trustees but each has only one vote. Members of The Board, representing Chapters, have varying numbers of votes depending on the size of the Chapter they represent.

Some groups, particularly the Private Practice Group have been very active and carry on work of interest to their members during the year. Others assemble only at the Annual Meeting. Much depends on the initiative of the Chairman.

By-Laws for the Functional Groups have been adopted by The Ohio Board of Trustees.

One large Ohio Chapter with a membership of over 600 is forming an Engineers-In-Industry Functional Group within the Chapter.

This subject is presented as information for other NSPE State Societies and as a warning. The writer feels that a program of functional groups should be in the long range planning of each State Society.

NSPE's New Public Relations Program Can Brighten the Future of the Engineer and His Profession

By C. G. Roush

Chairman, Public Relations Committee, NSPE

THOMAS JEFFERSON, speaking on the political welfare of our Nation stated:

"Cherish the spirit of our people and keep alive their attention. Do not be too severe upon their errors, but reclaim them by enlightening them. If once they become inattentive to public affairs, you and I, Congress and Assemblies, judges and governors, shall all become wolves. It seems to be the law of our general nature, in spite of individual exceptions; and experience declares that man is the only animal which devours his own kind; for I can apply no milder term to the Government of Europe, and of the general prey of the rich on the poor."

It seems to me this statement could be reworded slightly and express the need of our Profession for a strong Public Relations Program. In failing to call attention of the people to our accomplishments as Professional Engineers we have allowed our prestige and proper recognition to suffer. Many other groups have not failed in this and are continuing to spend millions of dollars per year creating favorable public acceptance, e.g., our Federal Government, strong labor unions, farmers, and some of the other professions, Chambers of Commerce, and Trade Associations. Thus, they do not become a prey to the uninformed people, but are accorded proper recognition and acceptance. If, however, any of these groups were to stop these activities for a few years they would soon be forgotten, as an individual standing alone cannot speak with sufficient authority to be heard.

As professional engineers, ours is not so much the problem of selling the term Engineer, but rather of selling the true meaning of Professional Engineering.

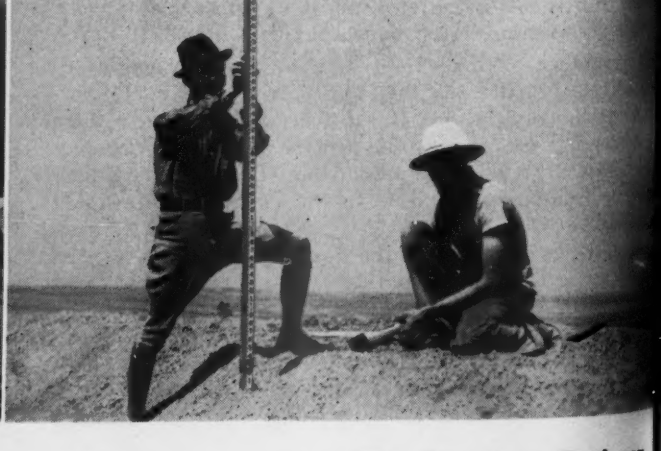
Quoting Charles Dickens, "It is well for a man to respect his own vocation, whatever it is, and to think himself bound to uphold it, and to claim for it the respect it deserves."

Theodore Roosevelt also stated, "Every man owes some of his time to the upbuilding of the Profession to which he belongs."

I FEEL we as Engineers and our Profession will prosper and gain recognition directly in proportion to the respect we demand for it and our willingness to give of our time and money. We must also first feel that we are Engineers, members of a great and honored profession, and give it our full loyalty and support, and then, and only then, that we are specialists in a particular branch of this Profession.

During our Annual June Meeting in Boston your Board of Directors voted to implement a Public Relations Program. This was part of the recommendation from the J.

The author says that we must inform the employers of engineers of the value of using properly qualified engineers to do engineering work. They should be told the meaning of state registration for engineers, relative to signifying certain technical and experience attributes. It is our problem to reach the top executive level and persuade them to think of their engineers as professional men and to give them opportunity and recognition.



Walter Thompson report, as being among the most important activities of the Society.

The cost of an all out advertising or Public Relations Program to influence the 150,000,000 people in our country and of continuing this activity would be prohibitive. It seems logical, therefore, we should select our target and aim our guns at this target—instead of merely shooting in the general direction of all the people hoping to reach the important influencing factors. All of you who have tried to shoot quail in a covey fully realize the importance of this selective aiming.

All successful advertising programs of industry have been designed along this line to reach a selected, desired group of people. Later as the Company grows and prospers and more funds are available, perhaps institutional advertising is used to sell the general public on their trade mark or name. This is usually along the line of National Magazine Advertising and Radio Programs, both of which are quite expensive.

We are selecting as our first target the group of people most directly affecting the engineer, namely: the employer of engineers as individuals or as consultants. A program of information directed at the top executive and personnel level of Private Industry, Public Utilities, Municipal, State and Federal Governmental bodies and educational aides should produce the best results for both. the individual engineer and the public welfare.

We must inform them of the value in using properly qualified engineers to do engineering work. They should be told the meaning of state registration for engineers, relative to signifying certain technical and experience attributes. They should be made conscious of the aims of our Society relative to professional development and the service motive.

The professional engineer can truly be made a part of management, as his knowledge properly utilized can and will develop new ideas and improve existing ones so that management can more efficiently employ labor at a profit and provide goods or services to raise our standards of living.

To fulfill this mission, however, the engineer must himself think in terms of management. It is our problem therefore, to reach this top executive level to persuade them to think of their engineers as professional men and give them opportunity and recognition. I feel sure our members will accept this responsibility and prove there is a difference between the man who is a truly professional engineer and the one who simply calls himself an engineer without specific qualifications.

We should also carry this program into the Engineering Schools by informing the faculty of the action we are taking to educate the users of their product (THE YOUNG ENGINEER).

As this phase becomes implanted in the minds of the employers of engineers and consultants the educators will realize the importance of starting the training of professionalism while the engineer is still in school.

We propose to accomplish this by a specially prepared mailing program to the people involved. A different approach will be used for men in the various classifications listed—an approach that applies to their particular type of business or activity.

The list of firms or Governmental bodies to be covered will be obtained from the chapter and state groups together with the particular individual or individuals from each firm or body.

A summary of all the approaches and information will be sent to the Engineering colleges so they can obtain the over-all pictures to be used in training and educating of the young engineer.

To succeed in this activity we will require the full support in both time and money from all our members. It will require work at all levels, by the chapter organizations, the state and at the National.

We will announce to you through your state and chapter organizations the details of our plan, and information as to the help you can give. Our success will depend on how well you as individuals are willing to accept this responsibility and do the task assigned.

The professional engineer working for a huge company; the consulting engineer in private practice; the engineer in government or education—all deserve more recognition as registered, professional engineers. An active public relations program by NSPE now can mean quick and sound progress. Such a public relations program (as approved by the Board of Directors at the last Annual Meeting) is explained in the above article.

Anyone Can Learn To Speak, Including Engineers . . .

The 1-2-3 of Good Speech Making

So YOU'VE been asked to make a speech. Believing the usual poppycock about engineers being poor speakers, you think a week's booking with the dentist is a day in the country compared to an attempt at public speaking. On the other hand you may be the type who's undaunted by this situation and convinced that your oratory is the hottest thing since William Jennings Bryan. In either case you'd better read on. If you belong to the timid type, we'll show you how easy public speaking can be and that engineers can do as well as anybody else; if you're the latter type, it may just be that you're a ham, and that the applause when you finish is in relief and not appreciation.

There is absolutely no reason why an engineer shouldn't speak as well as anyone else. Actually, good public speaking isn't a mystic gift which is imparted to a talented few. Common sense, simplicity and sincerity are its main ingredients. A good voice is certainly a valuable asset, but not an essential one. Abraham Lincoln is said to have had a high, nasal and rather unpleasant voice, but his public speaking record speaks for itself.

Perhaps the first thing to consider in preparation for public speaking is a good mental attitude. If you expect to fall all over yourself, mumble, and generally be uncomfortable, chances are you've licked yourself before you've started. Think first of how you felt when you were on the audience side of the rostrum. You wanted the speaker to succeed—you suffered with him when he lost his train of thought or appeared ill-at-ease. The same thing will be true for you. THE AUDIENCE WANTS YOU TO SUCCEED. They're not waiting like vultures for you to forget your notes or trip over the microphone cord. The empathy, or sympathetic muscular reaction, of your audience will echo your appearance. If you get nervous, so will they. Remember they're with you. Another happy thought to mull over is how many bad speakers you've been exposed to, and think how much better you're going to be.

Now that you're filled with confidence, let's consider what you're going to speak on and how you're going to produce the best effect on your listeners. First of all, think of adapting your material to your audience. For example, a speech to the Chamber of Commerce will differ greatly from one given before the P-T-A. Incidentally, if you are addressing the P-T-A, why not pattern your speech on the engineer's concern for the safe construction and adequate fire protection of schools, and call it "We're On Your Side." Or if it's a Ladies' Club you're speaking to, tell them how engineers have relieved a large part of household drudgery, and think of some appropriate title. Naturally you'll be more formal in addressing a business meeting than an informal dinner. *Keep your audience in mind when selecting a theme.*

Being audience-minded is also a valuable thing to remember when selecting a title. Many meetings are given advance publicity, and you don't want to alienate your audience beforehand with some brain-twister like "The Relativity of the Engineer to Various Aspects of Contemporary Civilization."

Being all set with a title and a theme, your next step is to compose and write your speech. You'll find a brief outline of the speech and the main points you want to make will be very helpful.

The main divisions of your outline will be the three parts of a speech—introduction, body and conclusion. The introduction should be rather brief and may begin with a recognition of the presiding official and other members of the audience. This is optional, however, and you may want to start with some expression of pleasure at being able to address the particular group or some such statement that conveys your friendliness. Don't overdo this sort of thing though—they won't believe you. One thing which definitely should be included in your introduction is a simple statement of theme, which will pave the way for the explanatory and amplifying section of your speech, the body.

The body of the speech contains your main points and the proofs that you have gathered to back them up, or the explanations of the various ideas. Each point should be as fully developed as you think your time will permit, but not tediously so. Watch your transitions from one thought to another, however. Unless these are clear, the audience may lose you in the shuffle if their attention strays for a moment. WARNING: Don't overwork your natural engineering tendency for order by stating your main theme and then saying "1. blah, blah, blah; 2. blah, blah, blah, etc." There's no quicker and easier way of killing an audience short of an A-bomb.

Note the speaker(?) on the left. He is commonly known as the hermit type. He can't see the audience and they can't see him. In fact they could leave and he wouldn't notice. What's more they probably will. Don't let this happen to you.

The gentleman on the right, in contrast, looks poised, pleasant and proficient. He's looking at his audience, and you can bet they're looking at him. Note, however, that he has his speech in a position for ready reference.

THE conclusion of your address should knit up the loose ends, if any, of the speech and should summarize briefly your theme and how you've backed it up. In your summary, though, don't use the same statement of the theme that you have used in the introduction or the body. Repetition is fine in public speaking, and is, in fact, one of the strongest ways of emphasizing your point, but make sure to re-word the idea differently each time you present it. You might also take the time in your conclusion to end on some pleasantry, such as thanking the group for inviting you, or telling them how you've enjoyed addressing them. A final thing to remember about the conclusion is to keep it brief. After all, by this time you've "said your piece." Round it up in a hurry and sit down. Too many speakers deliver a good address, and then ruin it by beating it to death in the conclusion.

You're over the two big hurdles of preparation and writing now, and nothing's left but the delivery. This is not the time to weaken. The first thing to consider is your method of delivery. You have three choices—speaking with or without notes or reading from a manuscript.

If you're brave enough to attempt your speech without notes, then you can do one of two things—virtually memorize your speech or just keep a brief outline of your main points in your head and attempt to fill them in as you go. If you're not accustomed to a great amount of public speaking, however, both these methods have their hazards. In memorization, you may "pull a blank," and be at an absolute loss to continue your train of thought, or your speech, and have to come to an abrupt halt. Needless to say, this sort of thing is ulcer-courting. On the other hand, if you use the brief mental outline of main points, you may suddenly find, on being confronted with an audience, that you are not the fluent extemporaneous speaker you thought you were. The main danger in this sort of address is that your transitions may be weak, you might forget a point, and you might get into "uhs" and "wells" while you're picking up your next phrase. Extemporaneous speaking is a definite gift in most cases; few famous orators, even, have attempted it.

SPEAKING from notes is perhaps the best, safest and most natural looking and sounding of the three methods of address. Your notes need not be too detailed, but they should include the main points, their substantiation, and many of the glowing phrases which you have whipped up in the less nerve-racking atmosphere of your home or office. You may want to use a big sheet of paper for your notes, but most speakers find it more satisfactory to use small cards, with one or two ideas on each. Of course the cards are less conspicuous, and are easier to spot, as you don't have to worry about looking at the right line. Using notes gives the speaker an appearance of knowing what he is talking about, and yet leaves him plenty of room for audience contact.

USING a manuscript may give you a lot more confidence than any other type, and if you feel you can't go on without your "prop," by all means use it. Certainly it is far better to read a well-organized, well-written speech to a group than to flounder around while you gasp for phraseology or stall for ideas. The pitfalls of speech-reading, however, are that you may bury your nose in the manuscript and be lost to sight, ignore the audience, or sound artificial. In addition, looking down at your written speech may make you inaudible. You won't fall into these evil ways if you remember to place your speech on a surface high enough that you won't have to do a jack-knife every time you consult it, if you make the speech sound conversational and if you remember to look out at the audience at least every sentence or two. The main thing that governs your choice of a speaking method should be the one with which you will be most comfortable.

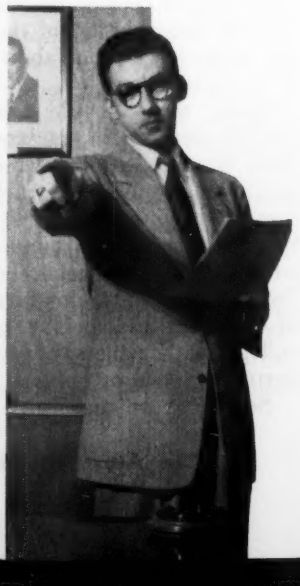
This is it! You have just been introduced and are on your feet, more or less, and confronted with a room or hall full of faces. Butterflies with iron boots on are tromping around in your stomach, your knees have turned to sand, your hands are palsied, and your tongue feels suddenly mute. If this has ever happened to you or does happen to you, comfort yourself with the thought that you are not alone. Breathes there a public speaker who at one time or another has not had this traumatic experience. Most speakers have these symptoms in a mild form at least, especially for the first few minutes of speaking, no matter how many times they speak. Some experts say the "butterflies" are your creative juices working and that no public artist should be without them. The weak knees and trembling hands usually disappear after the first moment of speaking, as they are a sign of the release of the tension which has built up in you as you realized that the program was coming nearer and nearer to your speech with the slow, awful surety of Fate. Your knees are usually hidden behind a rostrum anyway, giving you a fighting chance, and just remember to keep your hands straight down by your side or rest them on the podium for a few minutes until you regain your motor ability. Keep calm, relax and take your time. You'll be surprised at the results.

MUCH has been written and spoken about the delivery part of public speaking, but if you can remember these few "Do's" and "Don'ts," you can be reasonably assured of doing a good job.

DO

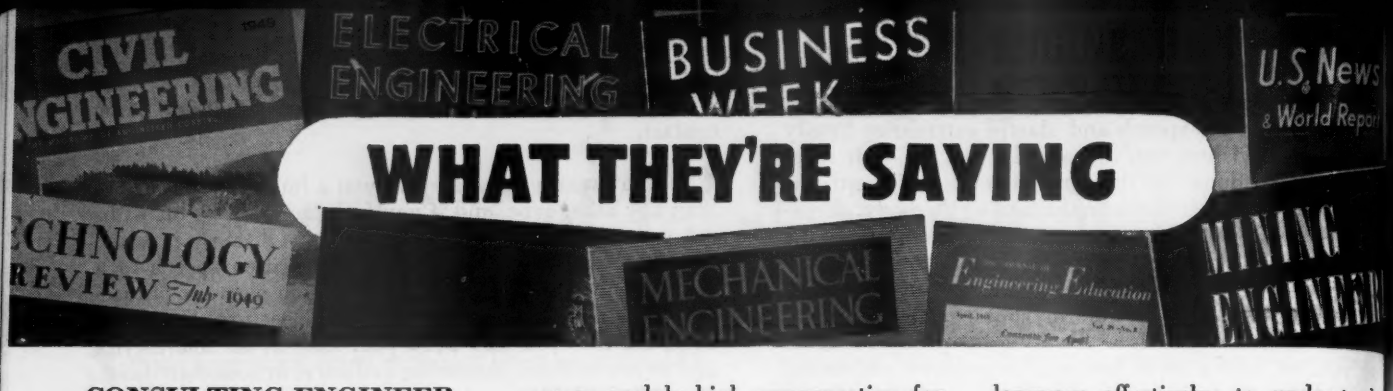
Remember to keep as calm as possible before getting up to give your speech. You'll get off to a better start, and

(*Continued on page* 30)



Curse you Jack Dalton! This might well be the sentiment of the misguided orator on the left who's trying to impress his audience by frightening them. This brand of speaking is as out-dated as melodrama.

You rather like the young man on the right, don't you? He makes you feel like he's glad to be with you and is in command of the speaking situation. Note the position of the hands; he's using it to break up the monotony of simply letting them hang by his side.



CONSULTING ENGINEER IS GOOD INVESTMENT . . .

A general consultant may be one of your best investments in the process of solving plant operation or expansion problems in that his fresh viewpoint may provide the illusive answers which have escaped your technical men.

The consultant also makes available to you his wealth of experience with a variety of industries, and a combined executive and technologist's outlook. His broad technical background can be of inestimable value to you regardless of the particular industry you are in.

The consultant's wide contacts may also help you to find a better source of raw material or find sale for one of your byproducts.

The consultant is used to thinking in terms of plants instead of machines. He can look at operations as a unit and with a viewpoint combining that of both the executive and technical employee.

Moreover, the consultant can make unbiased comments on internal problems which an employee would hesitate to mention. With plenty of background information, he may help solve not only immediate problems, but others.

Unfortunately, the consultant is sometimes treated as an outsider. He may be assigned a job and then be given only part of the necessary information. Things which may seem of no importance at the time may have considerable significance when viewed from another angle later on. It is much better to give him too much data to work with and let him sort it out than handicap him with inadequate information.

When a consultant has prepared his recommendations and submitted a written report, this report should be given prompt attention. And in the follow-up conference, the technical men of your organization should be called in to discuss these recommendations with him.

Make your consultant available to all levels of your organization. The research men at the bench should get to know him, as they often resent the consultant's receiving what he regards as an unduly high compensation for his service. It is the consultant's obligation to overcome the company employee's natural suspicion and fear of him.

The best and most valuable client-consultant relationships usually develop gradually as each become acquainted with the other. As with all other problems involving the coordination and exchange of ideas and the contact of personalities, an attitude of cooperation and understanding pays off.

—By Raymond B. Ladoo and C. A. Stokes in Chemical Engineering, August, 1950.

HUMANISTIC-SOCIAL GOAL FOR ENGINEERS . . .

We are beginning to see clearly demonstrated the fact that our industrial progress is even more affected by economic and political factors than by science and invention. It is therefore not only desirable for an individual engineer, but also imperative for the engineering profession as a whole to focus its attention upon such matters as these, to study the problems objectively, and to determine the most effective solutions.

Here we are faced with a dilemma: most engineers and scientists have very little other than technical training, while students of the humanities are unfamiliar with scientific or logical methods. From this condition has arisen the demand that the colleges should provide more so-called cultural education for engineering students.

Whose responsibility is it to bring this about, and how is it to be done? Both engineers in industry and engineering college faculties are parts of the engineering profession and it is therefore the profession as a whole which has new educational needs. Engineering education is therefore a professional responsibility, one which every man who considers himself an engineer must share.

The American Society for Engineering Education in its Report of the "Committee on Engineering Education after the War" recommended the following humanistic-social goal: the "development of the ability to read, write, and speak the English language effectively; to understand, analyze, and express the essentials of an economic, social, or humanistic situation or problem; and to appreciate its implications and relationships to the life and work of an engineer. There is also the goal of development of an adequate concept of the duties of citizenship in a democratic society; an acquaintanceship with the enduring ideas and aspirations which men have evolved as guides to ethical and moral values; and an appreciation of cultural interests lying outside the field of engineering." The Committee further recommended "that allotment (of time) to humanistic-social courses, not including drill courses in English composition, be not less than one 3-credit course in each of the eight semesters, or approximately one-fifth of the entire (engineering) curriculum."

But the colleges have also done more than state objectives; they have, to a remarkable degree, in the five short years since this report was published, implemented the recommendations of this report.

It is perhaps unfortunate that our engineering graduates cannot begin their careers with the experiences of a lifetime behind them, as a background against which to view economic and social issues in proper perspective. Obviously the college student has had little of this experience, so it seems clear that education in the humanities is a problem which cannot be solved by the colleges exclusively. Most of us today would be better citizens, better employees, and better professional engineers if our earlier experiences had been as effectively used to develop our understanding and appreciation of the humanities as to develop our ability to solve technical problems.

What, then, should the colleges seek to develop in engineering students if some "experience of life" is well-nigh essential to a true appreciation of the humanities? It seems to me that the aim of undergraduate education in these fields should be to "whet the appetite" for further study of economic and social areas beyond college, rather than to develop "experts" in social or political science.

Somehow we must give the engi-

neering graduate a proper perspective as to how important these subjects will eventually become to him personally, how much better fitted, even for a technical career, he will be with them, and how far short of a professional engineer he will fall if he fails to broaden his areas of understanding continuously.

Harry A. Winne,
Journal of Engineering Education
June, 1950.

INDUSTRY-COLLEGE AND THE ENGINEER . . .

This generation of engineers may well play a decisive role in determining whether our free economy will survive. For engineers contribute much of that unusual ability which will be needed in the solution of the great problems of our time. The productive genius of engineers will largely determine the potential rate of economic progress, since the causes of increasing productivity can be traced largely to technology.

If my estimate of tasks to come is correct, we shall in future need more men of good training, of basic ability and broad understanding. We shall need to train people not merely to preserve our economic system, but to improve and perfect it for the maximum good of all the people.

How can we then best meet these challenges? There are two major influences on the engineer's life—formal education and his career. There are two major groups—the engineering educator and the practicing engineer—one in the college and the other in industry, who can aid him in these two important phases of his life.

If the young engineer's life is to be one of full and unbroken service, then those who are working on both the educational and practical segments of his life must be in close agreement and harmony.

In dealing with this difficult subject, I have made the following specific recommendations for practical action by the practicing engineer.

1. He should make a contribution by participating more frequently with the universities in formulating the goals of engineering education.

2. He should take more initiative in joint establishment of engineer-educator responsibilities.

3. He should recognize the increasing demand for and promote broader cultural training in engineering schools.

4. He should provide guidance and encouragement to the engineer-educator for the development of technical, social and personal engineer competence.

5. He should participate in setting up and continuing a study of employment prospects for various types of engineering.

6. He should personally counsel and advise young men on the problems of their occupational choice.

7. He should make available to his local engineering schools the facilities of his plant so that academic training can be simultaneously supplemented by practical experience.

8. He should carefully plan the selection, orientation and training of the young man on the job during his first years in practical engineering.

9. He should encourage the young engineer to pursue part-time, formal education at the local engineering school.

10. Above all, he should always encourage competence and maintain high morale.

These are some suggestions to implement the goals and the responsibilities of engineer-educators and the practicing engineer so as to bridge the educational gaps.

—Lawrence A. Appley, President,
American Management Assoc.
Journal of Eng. Education, June,
1950.

SURPLUS OR SHORTAGE OF NEW ENGINEERS? . . .

Unless the percentage of high-school graduates entering engineering college is increased, there is a strong probability that instead of a large surplus of engineering graduates, there will soon be fewer engineering graduates available than are needed annually by our national economy.

The disturbances of the early war years caused a serious shortage of engineers, which was widely publicized. This publicity was undoubtedly a strong factor leading an unprecedented number of students, veteran and non-veteran, to enter engineering colleges in 1946. Freshmen in that fall numbered about 93,000 in all United States engineering colleges listed by the Federal Security Agency, Office of Education, and constituted 8.6 per cent of high-school graduates of the preceding June, compared to a prewar average of about 3.2 per cent. Upper classes were also large, and predictions of an oversupply of engineers became numerous. Such predictions have probably contributed to the steady decline of freshman engineering enrollments since 1946.

Of the 93,000 freshman engineering students of 1946, about 51,000 are now seniors in colleges accredited by the Engineer's Council for Professional Development according to statistics assembled jointly by the American Society for Engineering Education and the Office of Education. These institutions are expected to graduate about 47,000 engineers in 1950. In addition, about 4,000 engineering degrees will be conferred in 1950 by colleges not accredited by ECPD.

If there is a gradual return over the next 3 years to prewar "survival ratios," both groups of institutions combined will confer about 35,000 engineering degrees in 1951, about 25,000 in 1952, and about 19,000 in 1953.

A widely publicized report of the Bureau of Labor Statistics estimates an average annual need for engineering graduates of between 17,000 and 18,000 per year during the early part of the 1950-60 decade. This estimate is based on the number of engineers needed for *actual engineering jobs,* including anticipated expansion, and the needs for replacing engineers who die, retire, or leave the profession. However, a recent survey of the actual placement results in engineering colleges indicates that about 35,000 graduates of last year's class have actually been placed in jobs which utilize their engineering training, a figure almost twice as large as the estimate of the Bureau of Labor Statistics. About 3,000 entered graduate schools, and the employment status of about 7,000 is unknown.

Reports of the Manpower Committee of the American Society of Engineering Education for the past several years have emphasized the fact that engineering is still a growing and expanding profession; that not only the total number of engineers, but also the ratio of engineers to total employment, has been steadily rising ever since employment statistics have been assembled. Among the factors operating toward a continuation of this increase are: The continually increasing need for engineering and research in industry and Government; the tendency for engineers to develop new processes and services which create needs for new kinds of engineers and technicians; and the growing tendency of employers to recruit men with engineering training for jobs which have not in the past been considered engineering jobs, but for which an engineering background is becoming more and more useful.

The small excess of engineering graduates over engineering employment in 1950 and 1951 will undoubtedly be absorbed in non-engineering work, especially administrative, application, and technical sales positions, for which engineering training

(*Continued on page* 33)

Public Relations Affects Engineers' Income and Security, ASME Told

Engineers must make clear the requirements and define the limits of their profession so that "shadowland engineers" cannot trade on the reputation of the profession to its detriment, The American Society of Mechanical Engineers heard at its recent fall meeting in Worcester, Mass. John D. Waugh, associate with Pendray & Leibert, public relations firm of New York City, said engineers have a responsibility to maintain the prestige of the profession and assure its attraction for the best qualified men.

Engineers, declared Mr. Waugh, should be aware that their public relations "symbol" has a direct bearing on their income and the security and prestige of their positions.

"Individually and collectively," he said, "engineers have an important stake in improving their public relations so that the profession will achieve wider public understanding, with its attendant benefits. To advance their public relations standing, engineers should relate their activities to the public interest by making more widely known the role of the engineer in building modern society.

"The relative obscurity of engineers was commented upon recently in the editorial pages of a leading New York newspaper which said: 'In a predominantly engineering civilization — a civilization surrounded and sustained by the works of the engineer, and incapable of living for an hour except as these almost miraculous constructions function as they were intended to—it is remarkable how few engineers ever reach public prominence. We duly honor our poets and statesmen, our philosophers and soldiers and great salesmen and scientists, but we seldom know who our engineers are'."

Mr. Waugh said the indifference on the part of the public to the many achievements of the engineering profession is not due to the technical nature of the engineer's work. Scientists, often working in the purely abstract and highly technical realm, have done a superb job of dramatizing their profession, he declared. Their stories, he said, are told and retold, their counsel is sought, and their advice is very frequently accepted, adding that the very fact of their recognition should dispel the idea that the public is not interested in technical subjects and the personalities behind them.

"What the scientists have done to capture the imagination of the public is to strip abstract and mathematical subjects of their technical embroidery and explain them in terms of human interest and public benefit," Mr. Waugh declared. "The results of their research imply progress in national defense, public health, advancing living standards, and many other subjects of general concern and interest. Engineers could do the same thing quite as capably in their fields of endeavor and establish a greatly improved symbol in the public mind.

"The individual engineer's stake in public relations can be spelled out in terms of how he will benefit by participation in public affairs. Qualification for management posts is often based on the many facets of a man's personality, seldom on his deep immersion in any one subject. Engineers experienced in dealing with people are often selected to represent their company on important matters. Engineers who become successful in dealing with people, in addition in their understanding of cold materials, are better able to put across engineering ideas and changes, develop personal prestige, and advance to greater engineering responsibility.

"Former President Herbert Hoover recently emphasized engineering's public role and need to tell its story when he said: 'The engineer's works are out in the open where all men can see them. He cannot deny he did it. The doctor's mistakes are buried in the grave. The voters forget when the politician changes the alphabetical names of his falling projects. Trees and ivy cover the architect's failures. The lawyers can blame the judge or the jury. Unlike the clergyman, the engineer cannot blame his failures on the devil'."

M.I.T. Head Urges Universal Draft

The drafting of all men of draft age if the present emergency worsens, and then assigning them to civilian as well as military duties, was advocated at the recent ASME meeting by Dr. James R. Killian, Jr., president of the Massachusetts Institute of Technology. He urged, however, that regardless of a general war, "a certain number of young men" should be required to continue their education in essential fields.

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Accent on Activity

NSPE'S EXECUTIVE COMMITTEE MET IN WASHINGTON ON SEPTEMBER 16. The new Public Relations Program (See Page 12) was Number 1 on agenda. Brochure that will go to all members explaining program approved, and now being reproduced by Washington Hqs as is all other material to be used . . . CHAPTER OFFICIALS should be on look-out for **COMPLETE KIT THAT WILL HELP THEM TELL THEIR MEMBERS ABOUT CAMPAIGN.**

SOCIETY'S POSITION ON COLLECTIVE BARGAINING has engendered much discussion. The Statement went to schools, the press, etc., and the letters of comment have rolled in (See Editorial, Page 4) . . . **REMEMBER:** ATTRACTIVE folders of Statement ARE AVAILABLE ON REQUEST . . . Know your Society and its policies . . . **WRITE FOR STATEMENT NOW.**

ROSTER OF ENGINEERING FIRMS NOW CONTAINS MORE THAN 300 WIDE-AWAKE FIRM NAMES . . . The Roster already has been used by several GOVERNMENT AGENCIES AND MUNICIPALITIES . . . The Roster is compiled so that firms can be located either geographically or by speciality . . . **SEND IN THE COUPON ON PAGE 22 OF THIS ISSUE AND GET YOUR FIRM'S NAME ON ROSTER.**

GOOD NEWS FROM DELAWARE. Meeting held on September 27 in that state talked about affiliation of professional engineers there with NSPE through a **NEW STATE SOCIETY.**

THE GOVERNMENT CONTINUES TO CALL ON NSPE MORE AND MORE FOR ADVICE. LATEST REQUEST FOR INFO: A proposed model law re: Water pollution has been drawn up by the United States Public Health Service. **That agency has asked Society's Legislative Committee to review law and submit recommendations.**

WITH WAR ALL TOO GRIM POSSIBILITY, NSPE INCREASES ACTIVITY ALONG DEFENSE LINE. EXAMPLE: Last month Jack Hinman, head of the vital National Defense Committee, spent 3 days in Nation's Capital talking with top Defense Officials. All were off-the-record chats.

Long, worried looks were the order of the day when the BUDGET COMMITTEE MET ON SEPTEMBER 17 in Washington. Society Vice President John Coleman, head of Committee, led the group who is trying to make one dollar do the work of two or three.

NEW PROFESSIONAL LIABILITY INSURANCE PROPOSAL HAS BEEN PRESENTED TO NSPE . . . It has been referred to Committee on Professional Liability Insurance for study . . . Report probably forthcoming at Fall Board of Directors' Meeting in Little Rock. Past Presidents Al Stanford and Ritchie Lawrie, and Lew Klander, N. J. Society, form study group.

ATTENTION PUBLIC RELATIONS COMMITTEE HEADS: Michigan has used recorded DEFENSE PROGRAM available from National Hqs with great success. Why not schedule the recording as a part of your next meeting? Or get some time for local station and air it there. **AT ANY RATE, THE SHOW IS AVAILABLE BY ASKING NSPE HQS.**

NSPE WILL BE REPRESENTED AT MANY COMING AFFAIRS. Among them: Introduction of new presidents at North Carolina University, Carnegie Institute, and Brigham Young University.

BY AIRLINE, TRAIN AND BUS . . . Executive Director Paul H. Robbins went to New York to speak to Suffolk, Queens, and Nassau combined meeting . . . President Sidney L. Stolte appeared before Wisconsin Society meet at Wisconsin Rapids and West Virginia gathering at White Sulphur Springs . . . Extension Committee head Orland C. Mayer talked NSPE to Oregon engineers . . . Past President Alex Van Praag, Jr., was New Mexico speaker.

BOOK LOOKS

Title of Book: Man the Maker.

Author: R. J. Forbes.

Published by: Henry Schuman, Inc., New York. Price, $4.00.

Written by a distinguished scholar, and based on copious research, this book tells clearly and simply the history of technology and engineering from the beginnings of history to the present time.

Dr. Forbes particularly shows the relevance and influence of social and philosophical factors on the development of technical achievements in various periods of human history. Among these epochs are prehistory, the Ancient East, the Greeks and Romans, the Arabs, the Middle Ages, the sixteenth and seventeenth centuries, the Industrial Revolution and the modern age. Although scholarly in nature and background, this book is at once exciting and informative, and one which the nonprofessional reader can enjoy and understand as well as the technologist. In every period the author shows the close relationship between pure science on one hand and engineering and technology on the other.

Man the Maker shows that progress in science and technology has not been confined to any one race, nation or people; rather it is the cumulative legacy of the past, and the knowledge-seeking and experimentation of many men in many times all over the world. Forbes believes the history of engineering and technology to be an essential portion of the history of civilization, and demonstrates the growing tolerance and unity of mankind through the story of various inventions. In many ways *Man the Maker* is an excellent review of history and its concomitant cultural and technological advances.

In the Epilogue, Dr. Forbes says, "The modern technologist and engineer realizes that man's problems cannot be understood by simple calculations and chemical reactions or physical changes alone. He has become more modest than his predecessors in this respect. His science, he believes, teaches him no more than the properties of matter and its different forms." In speaking of the engineer's humanitarian goals the author states, "Unfortunately these aims are not purely scientific or technological. . . . As soon as we follow up the achievement of the engineer, we find that he is led into other domains of human life and activity if he tries to make others benefit from his inventions and discoveries."

This is a particularly valuable book for the engineer to own from the standpoint of background in his field. In addition, *Man the Maker* will provide you with many interesting ideas on inventions and technical progress which may be of benefit in preparing material for public speaking before engineering or other types of organizations.

Title of Book: Contemporary Structure in Architecture.

Author: Leonard Michaels.

Published by: Reinhold Publishing Co., New York. Price, $8.50.

Inspired by the author's desire to create a greater harmony and understanding between engineer and architect, this valuable book analyzes every major structural system and compares them with other systems.

The first half of the book considers the skeleton frame and the author presents the various means employed to join framing members. Structure in architectural design is discussed at length in the second section of the book. The author relates structure plan, section and massing, and points out the importance of considering structure in designing contemporary buildings. In a very complete appendix, Mr. Michaels demonstrates the positive structural influences of such materials as steel, aluminum alloys, reinforced concrete and timber.

The author is at present chief assistant with a London firm of architects where he has designed and supervised the construction of a large amount of building. He is an Associate of the Royal Institute of British Architects and a member of the British section of the Congress International de l'Architecture Moderne.

Illustrated by 259 photographs and 75 drawings of structural methods presently available to the architect and engineer, this beautiful book should be a welcome addition to any engineer's library.

Title of Book: Making Work Human.

Author: Glen U. Cleeton.

Published by: Antioch Press, Yellow Springs, Ohio. Price, $3.75.

A scientific analysis of the sources of a job satisfaction and industrial harmony by a well-known teacher and consulting psychologist to industry. A penetrating survey of human relations in business and industry—an area now recognized as crucial to the successful operation of the modern industrial system—for the forward-looking executive and for the general reader interested in the vital problem of humanizing industry. In non-technical language, it examines the subject in the light of psychological, social, and economic findings and suggests basic, practical techniques for achieving better human relations in our industrial society. Bibliography.

Title of Book: Effective Management Through Probability Controls.

Author: Robert Kirk Mueller.

Published by: Funk & Wagnalls Company, New York. Price, $5.00.

This book shows management, from the foreman to the president, how to calculate managerial risks, with practical examples to prove the effectiveness of statistical control using the law of probability. Non-technical in nature, the book will be guide for administrators who are interested in improving performance in their activities.

Title of Book: Mid-Century The Social Implications of Scientific Progress.

Author: Edited and Annotated by John Ely Burchard.

Published by: Technology Press, John Wiley & Sons. Price, $7.50.

This is a verbatim account of the discussions held at the Massachusetts Institute of Technology in its Mid-Century Convocation, March 31, April 1 and 2, 1949.

Other Recently Published Books

STATISTICS AND STRENGTH OF MATERIALS. *By Jasper O. Draffin and W. Leighton Collins.* The Ronald Press Company, New York. Price, $.50.

MACHINE SHOP METHODS. *By Lorus J. Milne.* Prentice-Hall, Inc., New York, 1950. Price, $5.00.

PROCESS HEAT TRANSFER. *By Donald Q. Kern.* McGraw-Hill Book Company, New York. Price, $8.00.

BUDGETARY CONTROL. *By Walter Rautenstrauch and Raymond Villers.* Funk & Wagnalls Company, New York. Price, $5.00.

TO THE *Editor* ...

Point 4 and Emergency . . .

Dear Editor:

From reading issues of the AMERICAN ENGINEER and the Legislative Bulletin I gain the impression that our Society activities in Washington tend to line up behind the Point Four program. I do not know whether this results from any specific mandate from the majority of the state societies or is a natural development of our Washington contacts.

If my impression is correct, I believe it is in order to examine this entire matter rather carefully. Conditions now are certainly radically different from those obtaining at the time the Point Four program was promulgated. There seems to be a wide-spread idea that the Korean fighting is an isolated incident, whereas any realistic appraisal of the present situation can hardly fail to classify it as a definite planned part of a world-wide communist program.

It is inconceivable that engineers, with their training, should not be among the first to get the true picture of the communistic moves. The facts speak for themselves. Consequently there should be no argument about the urgent necessity of curtailing programs which do not directly help the national security. There are many public works programs which absorb capital as well as technical services. Engineers should be leaders in demanding their suspension or drastic curtailment.

Relatively speaking, the Point Four program may not involve any great amount of money, but it does definitely involve technical services which are priceless in times of national emergency. Such services can not be developed over-night, and now is decidedly the time to conserve them for utilization on the home front.

These critical times demand that every one stand up and be counted. There should be a positive yes or no on any broad program affecting the national security. On such a basis it seems to me the Point Four program is very much out of order. How about it?

H. A. ATWATER, P.E.,
Kansas City, Mo.

► **In August, 1949, the Board of Directors meeting at Denver voted to support the Point Four idea in principle. At the Annual Meeting in Houston (December, 1949) the Board reaffirmed its stand and made known its reaction to legislation then pending in Congress. But Reader Atwater, we think, has written a thought-provoking letter. What do you think?—*Editor.***

Truck Overloading . . .

Dear Editor:

I see in the AMERICAN ENGINEER that the New Jersey Society is studying truck overloading. Come to Arkansas and see some real overloads and then look at the roads—no study required. We show you how to overload—we have the evidence of overloads on ruined roads. Only the heavy bridges can take it . . .

W. TERRY FIELD, P.E.,
Little Rock, Ark.

Refresher Course Need . . .

Dear Editor:

In the September, 1950 issue of the AMERICAN ENGINEER, there appears a letter to the Editor by a T. J. Pfeiffer, P.E. commenting on the value of the Refresher Course.

As one who has been instrumental in setting up such a Refresher Course offered by Kings County Chapter of the NYSSPE, I feel qualified to add to Mr. Pfeiffer's remarks.

I feel that the standards of the profession should be set high from the standpoint of scholarship and ability to serve the public. (For more extensive remarks on this subject see the article, Is Engineering a Profession . . . ,by Mr. James F. Fairman, P.E. in the same September, 1950 issue of the AMERICAN ENGINEER.) However, as it happens, much that we learn at college and at university is no longer fresh in our minds at the time we prepare for the licensing exam. This is partly because of the extent of the courses and the fact that the basic courses generally come early in our academic careers and partly because of the nature of the courses themselves.

At any rate, we find that there are cogent reasons for offering a Refresher Course, in preparation for the exam. In doing so, we certainly *do not* lower our professional standards because if the individual is not otherwise prepared for the exam, we cannot offer him an opportunity to pass. For this reason, the *Refresher Course* is appropriately named.

As for methods for raising the professional standards, that is not the subject of this letter, nor can it possibly be analyzed within the scope of this page.

S. S. AIDLIN, P.E.,
Brooklyn. N. Y.

Cooperation . . .

Dear Editor:

. . . the item "Never Stop Learning," (September, AMERICAN ENGINEER) has a lot of meat in it. In other words: I help you, you help me, we help each other, and together we can do anything . . .

Here's a good quote: "Cooperation—any act by two groups in which each is as careful of the other's rights as his own. Must be a two-way street. Seems to be a word known only to true Americans." Warner Swasey, U. S. News Service.

LLOYD W. GANSCHOW, P.E.,
Columbus, Ohio.

Government Rosters . . .

Dear Editor:

I was very much interested in the observation of Representative Brooks of the House Armed Services Committee, as quoted on the front page of the current issue of your magazine. The Engineering Profession is already "marshalled" and subject to call.

Now that this country is faced with the problem of mobilizing its manpower in an all-out effort to prepare us for "A War to Keep the Peace,"

(Continued on page 29)

It's Good Business To . . .

Fill Out The Coupon And Get YOUR Firm On New NSPE Roster!

The national headquarters of NSPE in Washington, D. C. is constantly receiving requests for the names of firms doing work in various fields of engineering. These are sometimes requested by locality, types of work, or specific problems involved.

To benefit our members, and to be of service to commercial organizations and government agencies in search of data, NSPE is attempting to set up a roster of engineering firms. The coupon below will supply all the information needed. If you would like your firm to be listed on the NSPE Roster of Engineering Firms, fill out the coupon below and MAIL IMMEDIATELY to NSPE, 1121 15th St., N.W., Washington, D. C.

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FIRM .....

NAME .....

ADDRESS .....

Is your firm interested in foreign work? ☐ Yes ☐ No
(Check Fields of Interest Below)

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CLIP COUPON AND MAIL TODAY

Around The Nation With Our Members

NSPE Board of Directors to Meet In Little Rock

The Board of Directors for the National Society of Professional Engineers is to meet in Little Rock, Arkansas on November 2 and 3, with the Arkansas Society as their host. Arrangements are under way to show these men some of the "Southern Hospitality and Geniality" for which Arkansas is noted.

It has already been arranged for the National Board and the Arkansas Society to have a Dinner Meeting on Friday, November 3, with C. Hamilton Moses, President, Arkansas Power and Light Company, as speaker for the occasion. Tom Mull, of the State Game and Fish Commission, will address the Board of Directors at a luncheon on November 3, and his talk will be accompanied by wildlife movies.

Furrier Wins Suit Because Engineer Is Not Registered

William J. Brennan of Wilkes-Barre, Pennsylvania, who sought payment of $709.40 from Raymond Balut, furrier, for perfecting certain refinements in apparatus used for preparation and selling of furs, lost his suit recently because he is not a registered and licensed engineer.

The complaint, filed by Brennan, alleged he was employed by Balut under an oral agreement to perfect certain refinements in apparatus used for preparation and selling of furs. The suit was for salary and expenses incurred in connection with the work.

The court formed its opinion on the question when the pleadings admitted that he was not a licensed engineer as required by law. Brennan contended, however, that he was a proficient mechanic, with many years of experience and that he does not come within the statutory restriction. The court held "in the light of these pleadings, we feel that the services so rendered constituted, in fact, the practice of engineering as intended by the statute in question."

NEW N. C. DIRECTOR

J. M. Fjeld, P.E.

Fjeld Is Elected North Carolina National Director

The newly organized North Carolina Society of Professional Engineers recently elected Mr. J. M. Fjeld, P.E., as National Director. In a congratulatory letter, Sidney L. Stolte, P.E., President, NSPE, said, "It is with considerable pleasure that I have noted your recent election as National Director from North Carolina. Our congratulations are extended to you on receiving this honor and to the members of the Professional Engineers of North Carolina for their wisdom in sending you to the council tables of the National Society as their representative."

Fjeld was graduated from Montana State College in June, 1929, with a Bachelor of Science degree in Electrical Engineering. The next year he was a Student Engineer with the General Electric Company at their plants in Schenectady, New York, Lynn, Massachusetts, and Erie, Pennsylvania. From November 1930 until May 1941 he was employed as a system operator for the New York Power and Light Corporation in Albany, New York. In 1945 he assumed his present position as Electrical Engineer for Burlington Mills Corporation in Greensboro, North Carolina.

First Wisconsin Member of NSPE Dies in Milwaukee

Oscar A. Kisa, P.E. consulting engineer, died on August 2, at the age of 64 years, after a short illness. Mr. Kisa was born in Troppau, Silesia, and received his undergraduate and technical education at Vienna, Austria. He practiced engineering in Austria and France before coming to the United States in 1922.

Mr. Kisa designed the power plant of the International Harvester Co. on W. Bruce St. in Milwaukee, early in his local practice. At the time of his death he was consulting engineer for a new boiler plant for the Milwaukee Forge & Machine Co.

He worked on projects in Illinois and New York, and was a registered professional engineer in those states as well as in Wisconsin and Florida.

Mr. Kisa was the first Wisconsin member of the National Society of Professional Engineers. He was a member of the American Society of Mechanical Engineers and of the Wisconsin Society of Professional Engineers, and was on the board of ethics and practice of the Milwaukee chapter of the latter organization.

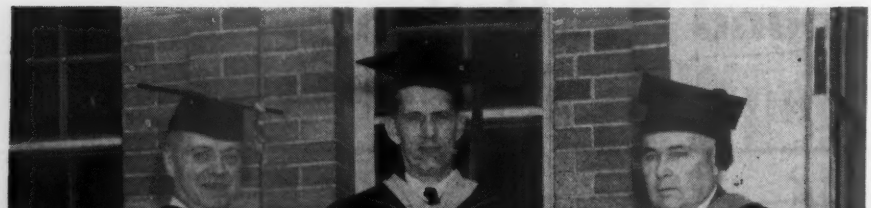
Saville Warns U. S. To Face Trained Engineer Shortage

Dean Thorndike Saville, P.E., of the New York University College of Engineering and NSPE member, warned recently that America will face a serious shortage of trained engineers in the next few years unless there is a marked increase in freshman enrollments.

In his annual report to Chancellor Harry Woodsburn Chase, Dean Saville compared a record registration of 91,000 students in engineering schools in the country in 1945-46 with an estimated enrollment of 36,000 this September, a drop of 55,000 students.

"The scarcity of young engineers in the World War II was noticeable, and means for their effective utilization were little short of shameful," Dean Saville said.

Robbins Speaks to Missouri Grads



Paul H. Robbins, Executive Director, NSPE, stands between Dean Curtis L. Wilson on the left and Professor Joe B. Butler on the right.

Mr. Paul H. Robbins, P.E., Executive Director of the National Society, gave the Commencement address at the Missouri School of Mines and Metallurgy on July 29 at Rolla, Missouri. Two qualifications of engineering success was the subject of Mr. Robbins talk, and he named them as character maturity and professional maturity.

Robbins presented in order of their importance the attributes which employers look for in the young engineer. These were the answers which were listed most frequently by a personnel poll charged with screening engineers for employment in engineering departments of industry, government and consulting offices.

First on the lists was personality, and second was the young engineer's ability to handle basic engineering principles. The third item was experience. The next qualification was the ability of an individual to get along with people. In the fifth place was the consideration given to the recommendations of those from whom they sought information. The sixth item was the promise of the individual or executive development. This qualification includes motivating drive, vision, and sound judgment.

The speaker proved that engineering is a profession, and is the third largest profession in the United States. "But we have not yet attained the degree of professional maturity that I believe many of us wish for," he said. The graduating engineers were challenged "To go forth to assume your place in engineering, to give thought to the development of professional maturity. It is made up exclusively of your attitude, of your approach to professional problems, of your willingness to go the second mile to give that little added service which is the distinguishing element of a professional man."

This is a record year for the School as 722 received degrees at the 75th Annual Commencement on May 29, 1950. Of this total of 938 degrees for 1950, 843 were first degrees in Engineering distributed between the eight Curricula of Ceramic, Chemical, Civil, Electrical, Mechanical, Metallurgical, Mining and Petroleum Engineering.

Dr. Curtis L. Wilson, P.E., is serving his second term as Chairman of NSPE's Committee on Education. Joe B. Butler, P.E., Professor of Civil Engineering, served as past president of the Missouri Society and now represents MSPE as National Director. He is also serving as Asst. Genl. Chairman of NSPE's Special Committee on Salary and Fee Study.

AIEE to Hold Fall Meeting

The annual Fall General Meeting of the American Institute of Electrical Engineers is scheduled for Oct. 23-27 at Oklahoma City, Okla., H. H. Henline, Institute Secretary, has announced.

Featuring the sessions in the Skirvin Hotel will be two general meetings on new advances in power generation, the basic sciences and communications, including radio and television, in addition to three days devoted to specific technical aspects of electrical engineering and the allied arts.

Also tentatively scheduled are inspection tours of Oklahoma industry, including oil, power, newspapers and telephone, and a trip to Tinker Air Base.

Hopeful Claghorn To Be Registered

Recently in "The Voice of the People" column of the Richmond *Times-Dispatch*, the following article appeared, written by Mrs. R. P. Cock of Williamsburg, Virginia.

"I just thought of something that might have value. I have known for years that doctors and lawyers have to pass a State board examination before they can practice in Virginia; now I find architects, professional engineers and land surveyors have to do the same thing. This is to protect us from people who are ignorant and dishonest, which is as it should be.

"While we do need protection from these men, the need is infinitesimal compared to the need of protection from politicians. Why can't they be required to pass a State board examination before they are allowed to run for a responsible office? Of course I wouldn't know what sort of examination it should be, but surely there must be scientists qualified to write an examination that would test whether a person is honest, reliable and capable of filling an important position.

"I would like to know what other people think of this and how such a requirement could be instituted."

The Board of Directors of the Virginia Society felt that all members of the National Society of Professional Engineers would be interested in this article, submitted to the AMERICAN ENGINEER by Mr. R. C. Bailey, P.E. of the Richmond Chapter. VSPE.

Wisconsin Society Holds Conference

The Wisconsin Society of Professional Engineers held its Fourth Summer Conference September 8 and 9 at the Elks Club, Wisconsin Rapids, Wisconsin.

The program included addresses by E. J. Kallevang, P.E., President, WSPE, S. L. Stolte, P.E., President, NSPE, G. E. Ekblaw, P.E., President, Illinois SPE and Dr. J. Martin Klotsche, President, Milwaukee State Teachers College. Other activities included functional group meetings, a business meeting and committee reports, the showing of a movie, and a tour to the Petenwell and Castle Rock Projects of the Wisconsin River Power Company. For the ladies there was a luncheon and golf and cards at the Bulls Eye Country Club. The conference was closed with an informal banquet which both the members and their wives attended.

Tulsa Chapter Offers Services to Local Chamber of Commerce

Recently, Mr. F. W. Robson, P.E., President of the Tulsa Chapter, OSPE, sent a letter to Mr. Tom McDermott, President of the Tulsa Chamber of Commerce, offering the services of the Chapter in assisting the Chamber's promotional program of industrial expansion.

Robson said, "The major part of industrial expansion consists in the use of experienced engineering ability and the Oklahoma statute regulating professional engineering states that in order to safeguard life, health and property, it shall be unlawful for any one person to practice, or offer to practice, professional engineering in this State unless such person has been duly registered under provisions of the act."

Robson further stated that the Tulsa Chapter could aid the Chamber in conforming with statutory requirements, and that Tulsa could benefit by the use of local registered talent in exploring the advantages of locating in Tulsa.

Mr. McDermott, in replying to Robson, expressed his interest and appreciation for the letter and said, "often there are special matters which might well be handled by your group in cooperation with us."

"I would propose that, in carrying your suggestion further, you and two or three others of your organization set up an appointment with our Executive Vice President, Russell S. Rhoes, at which time he can call into the conference the managers of our Agriculture and Industrial Departments for a discussion of your proposal," McDermott added. "Then, at some later time, your same group might want to meet with our New Industry Committee so that they, too, may understand your recommendations and perhaps can help in formulating a workable plan."

Southern Nevada Society Meets

The first fall meeting of the Southern Nevada Society of Professional Engineers was held recently with President A. T. Newell presiding.

At the conclusion of the business meeting, the group enjoyed the showing of a sound movie depicting the manufacture of precise surveying and levelling instruments in a large Swiss instrument establishment.

300 Engineers Hear Governor of Maryland

The Honorable Preston Lane, Governor of Maryland, is shown above addressing the Baltimore Chapter of Maryland SPE.

San Jacinto Chapter Hears Address On Civilian Defense

Mr. Sam C. Johnson, Assistant to Mayor Holcombe of Houston, Texas, was a speaker at a recent meeting of the San Jacinto Chapter, TSPE. Johnson advised of the preliminary plans that have been made for the Houston Area from the standpoint of civilian defense. Such plans were started some two years ago with particular reference to a Port Disaster Plan along the entire length of the Ship Channel and some half mile on each side. Mr. Johnson advised that that part of the overall National Plan applying to the Houston Area had not yet been completed but is expected in the early part of September. Consideration is being given to a joint plan for Galveston and Harris County rather than separate County arrangements as during the last war. Red Cross personnel is already very active in its training program and preliminary plans indicate that non-combatant military personnel stationed in the civilian defense area will act as coordinating agencies. Mr. Johnson specifically pointed out that the Professional Engineers can be expected to be called on for an active part in the civilian defense plans covering such responsibilities as necessary demolition, checking against contaminated water supply, maintaining utilities and other like engineering phases.

Toledo University Wins

The University of Toledo Student Chapter, OSPE, won the new achievement award recently opened to student chapter competition. The Board of Trustees has adopted the rules used for this year's award to guide all future committees in their choice of a winner.

Lane Tells of His Highway and Building Construction Program

More than 300 professional engineers attended an interesting "political year" meeting held recently by the Baltimore Chapter of the Maryland SPE. Governor Preston Lane, candidate for re-election, was the principal speaker.

Following dinner, Lane outlined events that have taken place during his four years as chief administrator of the State's affairs. Keying his remarks to his professional engineer audience, he pointed out that hundreds of miles of new highways were constructed during his tenure of office.

"And the roads we built were built to last not one or five years, but fifteen and twenty and longer. Yes, they cost the people of Maryland a lot of money but it was money wisely spent and here's why: we spent money on well designed roads as recommended by our engineers — we didn't throw it away on thin tar blankets that are not roads at all."

Lane also emphasized his building construction program. He said that Maryland had been near the bottom on the Nation's rating of mental hospitals and penal institutions. The State is now recognized as having units comparable to others.

Touching briefly on national affairs, Lane told of a recent conversation with Governor Tom Dewey of New York. "I had a serious talk with Dewey and he is genuinely alarmed at the state of the world. I could not help but be impressed by his views."

Lane told the engineers that their professional abilities will be needed greatly in the trying days ahead and asked the profession to back its Nation as it has never done before.

Office of Education To Establish New Scientific Roster

The Federal Security Administration has announced that by agreement with the National Security Resources Board, the Office of Education has assumed responsibility for the establishment of a national roster of scientific personnel, similar to the one compiled in World War II. James C. O'Brien of the security board is director of the project.

The title of the new undertaking is the National Scientific Register Project. It will conduct inventories and make studies of the nation's scientific manpower supply, and will also recommend steps to increase the numbers of skilled personnel where need in some special field develops.

According to the Federal Security Administration "engineers and scientists are the most valuable members of society in the present international situation." Six weeks ago they were classified as a drug on the market. War always makes the technical-professionals prominent, although it does not bring financial remuneration proportionate to their contribution to the economy.

Lincoln Foundation Announces Awards To Students and Schools

The Lincoln Foundation recently announced the winners of its 1949-50 competition for the Engineering Undergraduate Award and Scholarship Program. Young engineers in 23 states received 77 cash awards ranging from $1,000 to $25, and a total of $1,750 was given in scholarship funds to 40 different engineering schools.

The Engineering Undergraduate Award and Scholarship Program, open to all undergraduate engineers registered in engineering colleges, gives awards for papers on arc welded design, fabrication, maintenance or research.

Dates for the current competition have been announced by the Foundation as June 1, 1950 to May 31, 1951. All engineering undergraduates are eligible to participate regardless of their graduation date during the year, so long as their entry is submitted while they are still registered as an undergraduate.

Address all inquiries to A. F. Davis, Secretary, James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio.

Ex-Communist Speaks To Travis Chapter

Dr. Edward Taborsky, visiting lecturer in government at the University of Texas, recently told the Travis Chapter, T.S.P.E. of his revolt against the communist regime.

Scheduled as a regular meeting of the Chapter, the talk was open to the public because of the current problems of the day.

He accompanied Benes on his trip to Washington in 1943 for a conference with Roosevelt, and in the same year was with Benes at a conference with Stalin in Moscow.

From 1945 to 1948 he served his country as envoy extraordinary and minister plenipotentiary to Sweden, resigning in the latter year in protest against the seizure of Czechoslovakia by the Russians.

Dr. Taborsky came to the University as a visiting lecturer in 1949. At the time of Munich he was secretary to the Czech foreign minister, taking over in 1939 as secretary to President Eduard Benes when the Czech government-in-exile was formed in Britain.

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* * *

Capital Chapter, ISPE, In Joint Meeting

The Capital Chapter Illinois Society of Professional Engineers, Springfield Engineers Club, Highway Engineers and the host, the central Illinois Chapter Illinois Society of Professional Engineers joined forces for an inspection of A. E. Staley Mfg. Co.'s excellent corn and soybean plant and a snack in the new company cafeteria.

The Springfield group came to Decatur in a special three car train, were met at Decatur by the mayor and a brass band and paraded through town in three busses and about 25 automobiles under police escort.

The offices of the Illinois Society of Professional Engineers are now located at 631 East Green Street in Champaign, overlooking the campus of the University of Illinois.

Washington Asks For Engineer On Power Group

All chapters except one was represented at the recent Board of Trustees Meeting of the Washington Society of Professional Engineers.

Among business transacted, was the appointment of Milton W. Bergerson, President of the Olympia Chapter, to contact the governor's office and learn the present status of the state power commission. The Washington Society had previously requested that a professional engineer be appointed to the Commission.

Engineering Education Society Announces Capital Area Officers

The National Capital Area Section of the American Society for Engineering Education recently announced its new officers for 1950-51. These officers include: Chairman, Prof. Russell B. Allen, P.E., Treasurer of NSPE, and member of the faculty of Civil Engineering, University of Maryland, College Park, Md.; Vice Chairman, William Oncken, Director of Training, U. S. Naval Ordnance Laboratory, White Oak, Silver Spring, Md.; and Secretary-Treasurer, Dean L. K. Downing, Department of Civil Engineering, Howard University, Washington, D. C.

The first evening meeting for 1950-51 will be held on October 3, with the newly-elected officers presiding.

Dayton Chapter Hears Two Carnegie Experts

The September meeting of the Dayton Chapter, OSPE, held in Dayton at the Engineers' Club, featured an address by two experts of the Dale Carnegie Method of "winning friends and influencing people."

"Two Secret Weapons for the Engineer" was the theme around which Charles Harbottle of Miami Jacobs Business College and W. Weisenberger of Inland Division of G. M. C. wove their excerpts from the Dale Carnegie Course taught at Miami Jacobs. The Effective Presentation of Ideas and the Problems in Human Relations encountered in engineering activities were the main topics around which the presentation and discussion were centered.

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News To Note

The Los Angeles Chapter of the California Society met recently for a dinner followed by a meeting which featured an address on "Civil Defense Fire Ordnance Control" by Mr. Joseph Yockus. Mr. Yockus is California's Fire Marshall, and is also attached to the Governor of California's State Board of Civilian Defense and Mobilization.

Recently, members of St. Louis Chapter, their families and guests gathered at Tilles Park in St. Louis County, for the Chapter's Second Annual Picnic.

Young and old had an opportunity to relax and enjoy seeing many friends while up to the minute news was provided by a television screen in the pavilion.

Since the order of business was "relaxation" the picnic adjourned at dusk — about 8:30 p.m., concluding a very happy occasion.

The Marion Chapter, Ohio SPE, held its first fall meeting on Monday Evening, September 11, at 7:30. The meeting consisted of an inspection tour of Marion's newest industry, Marion Industries Division of Motor Products. This plant manufactures sash for trucks and automobiles. A short business meeting was conducted at the plant.

The Essex County Chapter of the New Jersey Society held its regular monthly meeting on September 20 at the Hotel Suburban in East Orange, New Jersey. The featured speaker of the evening was Leonard Dreyfuss, State Director of Civil Defense, and Chairman of the Eastern Conference of State Defense Directors. Mr. Dreyfuss chose as his topic "Plans for Civil Defense."

Dinner was served at 7:00, and the speech was given at 8:00, followed by a short business meeting.

The Midwestern Chapter, Pennsylvania SPE, recently held a supper meeting at the First Methodist Church in Sharon, Pennsylvania.

Mr. Merritt J. Harding, Regional Forester for the Pennsylvania Department of Forests and Waters was the guest speaker. Mr. Harding's topic was "The Rehabilitation of Spoil Piles Following Mining by the Open-Pit Method."

The Central Illinois Chapter of the Illinois Society recently announced a refresher course to be offered in engineering beginning in September. The course is being sponsored under the joint auspices of the Illinois Society and the University of Illinois.

Colonel Blake R. Van Leer, P.E., president of Georgia Institute of Technology and a reserve officer in the Corps of Engineers recently headed a review by four Army reserve officers of 198 site proposals in 40 states for consideration as the site for the Army's proposed Quartermaster Corps Research and Development Laboratory. Colonel Van Leer is a member of Georgia SPE and NSPE.

The Indiana Society of Professional Engineers will hold their Annual Convention on Friday and Saturday, December 1 and 2, 1950 at the Van Orman Hotel, Fort Wayne, Indiana.

The Hotel Kaufman in Zelienople, Pennsylvania, was the recent meeting place of the Midwestern Chapter, Pennsylvania SPE. The meeting featured Ladies' Night, and the program included pantomime by Jack Smith, and an address, "Music in the Public Schools," by William M. Blough, Director of Music Education in the Public Schools.

The Wichita Chapter, Kansas SPE recently held a social meeting at Sandy Beach in Wichita. About 36 reservations were made and swimming, horseshoes, dancing and card playing were enjoyed by the members and their guests.

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Letters

(*Continued from page* 21)

we come to the subject of Government Rosters. Most of us recall, during the last war, how the Administration, in line with its policy of over-lapping bureaus, also provided over-lapping rosters of engineering personnel.

I finally lost count but, to the best of my recollection, Washington maintained at least eight rosters, compiled —and, periodically, circularized—by as many different Government agencies. One I recall was titled, "The President's Confidential Roster" and that old one—lately revitalized—, "Survey of Selected Engineering Personnel." Apparently, we engineers were classified as indiscriminately as one would doctors—M.D., D.D., Ph.D., D.D.S., etc. When you couple this promiscuity with over-lapping registration, the result was what you might expect—a wasteful mess!

Frankly, I see no reason for the Government's maintaining a separate engineering roster, since there are already available the best rosters that could be devised in the membership lists of our separate engineering societies. These lists comprise an up to date register of all of our top-flight engineers, arranged categorically as to SCOPE of work for which they are best fitted.

Thus, if a Government agency has calls for electrical engineers, it can locate the country's best talent among the members of A.I.E.E.; a trained water works man in A.W.W.A. or a mechanical engineer by consulting the membership list of A.S.M.E. As a cross-check, we have the members of N.S.P.E. This method is suggested, providing that particular agency is really in quest of talent—divorced from any political influence—and will avoid the mistakes of the last war, when plumbers were picked to handle involved water-development work or to operate extensive water works projects.

But "rosters" are, apparently, as closely associated with the running of a war as pop-corn is to the movies. However, too much pop-corn can interfere with the continuity of the main event. If Washington must maintain an engineering roster, let it compile one of our out-standing talent from the membership lists of our recognized National socities, cross-checked by the membership of N.S.P.E. Such a roster will not be diluted by names of those politically important and only incidentally associated with engineering work.

So, Representative Brooks, the best engineers of the country are already marshalled and await our country's call!

L. W. CULTER, P.E..
Miami, Fla.

Foreign Friends . . .

Dear Editor:

I note that the leading article in the August issue of the AMERICAN ENGINEER is entitled "Engineers Can Promote International Understanding." Permit me to suggest that the title is already obsolete. Engineers *do* and are at this moment promoting international understanding, far beyond the capabilities of departments of state.

At the tenth annual meeting of The American Congress on Surveying and Mapping held in Washington, D. C., in June, 1950, two speeches were presented that particularly illustrate my point. The first was by W. G. Stoneman, Chief Liaison Officer of the Inter-American Geodetic Survey, on the subject "International Cooperation in Mapping Latin America." The second was by Lieutenant General Willis D. Crittenberger, Chairman, Inter-American Defense Board; Senior Member U. S. Delegation, United Nations Military Staff Committee; Deputy to the Chairman of the Joint Chiefs of Staff on North Atlantic Treaty Organization, on the subject "The Relationship of Mapping and Charting to the Defense and Development of the Americas."

Both of these gentlemen told of the phenomenal progress that is being made at the present time in mapping the Western Hemisphere on a coordinated basis, with participation by almost all of the Western Hemisphere nations, and in which international boundaries, yes, even political no-man's lands, are crossed, without right of passport, without fear of hostility, with none of the ceremonies ordinarily necessary for ordinary over-the-boundary activities

More clearly to emphasize this feeling of international accordance in a surveying problem, the above meeting was attended by citizens of about forty foreign countries, most of our western hemisphere friends being prominently represented by officials of high military and civil rank.

For these reasons I say that the title of your article can, and now should be, changed to "Engineers Are Promoting International Understanding."

S. A. BAUER, *President*,
A. C. S. M.
Cleveland, Ohio.

Accentuate the Positive . . .

Dear Editor:

Although I am not an engineer, and consequently not a member of the NSPE I do read the AMERICAN ENGINEER regularly and since you invite, in your recent editorial anent the subject of professional status of engineers, comment on the matter, I have thought it might be helpful to have the viewpoint of one outside the profession.

Through the eyes of the layman it would appear that engineers do enjoy a professional status today which they alone seem not to believe they enjoy. Certainly our universities have long considered engineering as a profession, our government classifies engineers as professionals, our military forces accord them officer ratings, and our society generally considers them as professionals.

Why then the prevailing disbelief among the engineers themselves? May I venture to suggest it hinges upon the relatively low percentage of self-employed in the profession? But that cannot be taken as a criterion. The same inherent situation applies to accounting, journalism, social work of all kinds and teaching—all professions.

The standard by which a professional versus non-professional is judged lies in the matter of ethics and service. Those are, in the final analysis, personal matters which every engineer may practice. If he is standing by his own judgments and giving recommendations uninfluenced by fear or favor of his employer he is a professional—whether he knows it or not.

ROBERT C. LUNCH.
Detroit, Mich.

► We are happy, indeed, to receive comment from men out of the profession, and most pleased to have heard from Mr. Lunch who is a brother of Milton F. Lunch, NSPE's Legislative Analyst. Mr. Lunch, (Robert C., that is), himself an editor, is with the United States Air Forces Depot in Detroit.—*Editor*.

Korea . . .

Dear Editor:

I'm happy that at last our profession is thinking about current events. I enjoyed your Korean story in the September issue and, after reading it, felt I knew more about my future in regard to the emergency . . .

SIDNEY K. PORTER,
Tunball, N. D.

Speech

(*Continued from page* 15)

your mind will work with much more accuracy.

"*Set your audience.*" This means that you pause slightly after arising, and give the audience a chance to settle down before you begin to speak. You may do this by slowly arranging your notes, looking the audience over for a few seconds, or adjusting your glasses. If your audience is inclined to be a little noisy, you'll find nothing so effective as just standing calmly for a few seconds until they get quiet. This will also give you time to pull yourself together in addition to focusing the audience's attention on you and your subject matter.

Speak so you can be heard anywhere in the room. Theopolis Boondock on the last row, who tore in at the last minute before your speech was scheduled, may be much more interested in hearing what you have to say than the people at the speaker's table. If your speech can be heard in the immediate vicinity only, you might as well have a private conference with these people. *Intelligibility is the first rule of public speaking.* The audience will never know what you're saying if they can't hear you. Besides, some of your audience might miss that terrific story or well-turned phrase you've labored over, and you don't want that to happen!

Remember the audience wants you to make a good speech.

Keep it conversational. You're not teaching or preaching, you're *talking* to them. Use the same *tone* you'd use to a friend or guest in your home, only use more *volume*.

Use a gesture if it feels natural. The sort of unconscious gesture that you make while speaking in everyday life is fine for public speaking.

Use appropriate and natural facial expressions. The stone faces look fine on Mt. Rushmore, but if you'll notice, they don't go in for much public speaking.

Use humor if the speech and the occasion warrant it, and if joke or story-telling comes naturally to you.

Keep your head if you make a mistake. If it's a small mishap, gloss it over as calmly and quickly as you can. If, on the other hand, it's a large faux pas, like tripping over the Chairman's foot and falling on your face, or knocking over the water-jar on the speaker's table, go ahead and join in the general laughter. You might as well.

Dress appropriately. Conservative clothes are usually best. Otherwise you might be taken for a bookie.

Vary the tempo of your speech. If you're telling of a very exciting incident, speed it up and make it sound exciting. Tempo variation will give your speech more audience interest and also help to keep them awake.

BE SINCERE. This is perhaps the most important thing of all. *Say what you mean and mean what you say.*

DON'T

Race to the rostrum and tear through your speech. You'll unnerve the audience and they may never be able to catch up with you.

Clutch the rostrum as though it were the last thing between you and certain death. Rest on it easily if you like, but don't use it for a prop.

Slouch. An erect posture will help to put you at your ease, help your voice to carry, make you look better, and give you a more poised appearance.

Glower at the audience. This is often an unconscious facial expression on the part of the speaker. He's straining to get his ideas across, and looks like he's ready to stone the audience to death. They're rooting for you . . . return the kindness.

Use unnatural gestures. The literal gesture went out with the Gay Nineties. That is, when you say "you and I," you needn't point to the audience and then to yourself.

Pace up and down. Motion on the stage is the greatest attention-getting device outside of the strip-tease. The audience will get so wrapped up in watching your movements they'll probably forget what you're saying.

Use a superior, senatorial or sarcastic tone of voice. Whose side are you on?

(*Continued on page* 34)

Roster of Engineering Firms

On page 22 of this issue will be found a coupon to be used by engineering firms who desire inclusion in NSPE's Roster of Engineering Firms. It's good business to get your firm on the list for it will be used extensively in supplying commercial organizations and government agencies with information about engineering organizations and the work they do. Turn to page 22 now.

Aging Population

(*Continued from page* 7)

in the ultimate may serve as life savers. The London and Donora incidents may well become the incentives to basic work in this field.

In London, deaths from all causes during the week of the widely publicized intense fog of November, 1948, rose sharply in comparison with previous weeks and with the same week in previous years. Death rates from bronchitis and pneumonia were more than double those for the same causes during each of several preceding weeks. Possibly the most significant public health aspect of this particular London fog is revealed by analysis of the age grouping of fatal cases of bronchitis and pneumonia. For both diseases, the greatest excesses in mortality rates occurred among persons 45 years of age and older, the peak being in the age group 65 and over. Among persons under 45, there were no significant differences between either the crude or the respiratory disease death rates for preceding weeks and those for the foggy week.

At Donora, all of the fatalities which were attributable to the smog incident occurred among persons over 52, the mean average and mediam ages being 65. The Public Health Service investigation of the situation revealed also that there was a significantly higher incidence of serious cases among persons in the older age groups. Similar crises had occurred previously in the community, probably being associated with adverse atmospheric conditions. An interesting sidelight of the inquiry was the revelation that there appeared to be a positive correlation between the severity of the affliction and certain aspects of housing quality.

H. P. Roth and E. A. Swenson, in an unpublished study of the irritant aspects of atmospheric pollution, point out that irritation appears to increase with age and that susceptibilities vary widely and are greatest for persons whose eyes or nasal passages are inflamed. In their reference to the implications of age, they show that college students require a concentration of about four times the strength of the irritant (e.g., formaldehyde vapor) needed to produce equivalent irritation in persons over 50. Furthermore, susceptibility appears to increase with age even in older persons.

As a result of these isolated ex-

periences, is it fair to assume that older people are especially susceptible to the hazards of atmospheric pollution? Is it likely that older persons, who may have less efficient or more worn out respiratory or circulatory systems than younger members of the community, when exposed to abnormal atmospheric conditions may be seriously embarrassed? What specific air pollutants are most significant in producing excess morbidity and mortality? Answers to questions such as these will be important in planning and operating community-wide projects for the control of air pollution, and will also play a role in increasing life expectancy.

WHAT about care of the chronically ill? The increase in recognized chronic disease has created a need to plan for and provide a variety of facilities for care of the chronically ill. Therein lies a fertile field for engineering study and progress in the design, construction, equipment, and maintenance of hospitals, infirmaries, nursing homes, and outpatient centers.

M. C. Hope recently has outlined some of the environmental sanitation problems in the national hospital survey and construction program. As he points out, it is one of the few activities in which the engineer is identified with the care and treatment of the ill and infirm. With rare exceptions, there is little evidence that sanitary engineers involved in hospital design, construction, and maintenance have concerned themselves yet with much beyond their traditional interest in water supply, plumbing, and waste disposal. In the field of radiation therapy alone, there appears to be need for public health engineering skill in the design and maintenance of treatment rooms and equipment.

The immediate problem, from the professional engineer's standpoint, in working with and for our aging population, seems to be one of gathering and analyzing data concerning the relationships between the environment and the health of older people. In spite of the lack of any great factual bases for action, sound judgment dictates that the solution of health problems among the aging population will involve preventive as well as curative measures. Present knowledge supports the belief that physical environment contributes to the causes of cancer and accidents; further, it points up a relationship between environment and the course of mental illness and of diseases of the heart and circulatory system. Is it unreasonable that we should not expect that knowledge to be gained in the future will bear out these facts?

What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. When writing manufacturers, we will appreciate your mentioning the American Engineer.

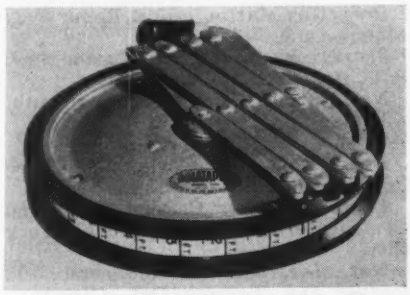
● A new labor-saving machine designed to reach hard-to-get-at heights has been developed by Capital Industries, Inc., Portland, Oregon.

Named the "Industrial Monkey," the machine would be practical in all industries which must send workers above ground.

On the end of the steel boom is a rail-protected, automatically self-leveling work platform insulated to protect against 8000 volts. Hydraulic in operation, the boom is controlled by the worker on the platform by foot buttons, or it may be operated from the truck cab.

There is a 90 day guarantee covering workmanship and materials for the "Industrial Monkey," which is manufactured by the Harsh Machine Works of Portland. Exclusive distributor for this product is Capital Industries, Inc., and all inquiries should be directed to them at the Spalding Bldg., Portland 4, Oregon.

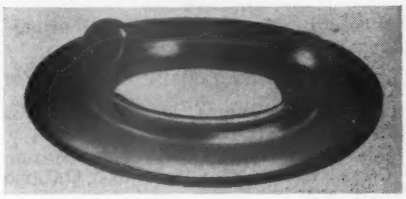
● A new, lightweight rolatape for accurate one-man measurement, vertically, horizontally or around curves has been announced by Rolatape, Inc., Santa Monica, California.



The new unit permits safe and accurate measurement of from a few inches to almost unlimited lengths by a single individual. Recessed tape face on rim of wheel indicates measurement in fraction of inches up to 2 feet. In operation, an audible click is made for every two feet measured and a bell rings at the 100-foot mark.

A lightweight handle collapses down to 8 inches when not in use so that complete unit can be carried in glove compartment of any automobile. For further details write Rolatape, Inc., 1415 14th Street, Santa Monica. California.

● Announcement is made of a newly designed metal formed grommet completely covered with rubber. It is designed for insulating blanked holes in metal to prevent cutting, chafing, shorting and rattling of wires, cables, conduit, tubing, etc. which pass through the holes.



The new grommet is called the ARCO "Sta-Put" series 3120 and is manufactured by Automotive Rubber Company, Inc., 8601 Epworth Blvd., Detroit 4, Michigan.

Data sheets have been prepared on present available sizes, and additional sizes are available on special order and will be added to the standard line as the demand indicates.

● A new, time-saving short cut through the problem of selecting the right material has been developed by Monsanto Chemical Company's Plastics Division. The new tool for engineers is a "Comparator," a two-dial, reference guide to facts and figures on plastics and other structural and fabricating materials.

An easy twist of the twin dials gives comparative cost figures on styrene and aluminum, phenolic and zinc, or any contrast of plastics and other materials. The reverse side of the dials quickly affords condensed information on the mechanical, thermal, electrical, optical and chemical proportions of 12 leading plastics.

Coat-pocket sized, the Comparator tells specific gravity, cost per pound, cubic inch per pound, and cost per cubic inch of plastics molding powder and alternate materials. For further information write the Plastics Division of the Monsanto Chemical Co., Springfield, Mass.

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What They're Saying

(Continued from page 17)

has been found to be an excellent preparation.

The indicated number of engineering graduates in 1952 will be much smaller than the number actually placed in 1949, and by 1953 engineering graduates are expected to be fewer in number than the Bureau of Labor Statistics estimates will be needed for *actual engineering jobs.* From 1954 to 1965 or later there will develop a serious shortage of engineers, *unless the ratio of freshman engineers to high school graduates is increased.*

The indicated need for more engineers can be filled, as suggested above, either by an increase in the percentage of college freshmen who enroll in engineering, or by an increase in the ratio of high-school graduates who go to college, with little or no change in the percentage of college freshmen enrolled in engineering. In view of the increasing opportunities for college graduates in all fields, and of the small percentage of well-qualified high school graduates who now enter college, the latter seems the more promising.

Henry H. Armsby.
Higher Education

NEW BRITISH COURSE FOR THE ENGINEER . . .

There have been many criticisms that the engineering student learns too much purely technical knowledge, and would benefit from a wider scheme of education. At University College, London, the Faculty of Engineering has taken advantage of a certain regulation of the University of London, and has run a course for engineers which includes several other subjects besides purely technical ones. The particular regulation of the University states that all students must have been in residence for three years before they can be awarded a degree. Under the old regulations for engineering, the course was divided into three parts. Intermediate, Part I, and Part II. It was possible for a student to pass the Intermediate examination externally or by exemption, and thus he would take his Finals a year before he could be awarded his degree. The final year necessary for the residential qualification was named—possibly wrongly—the "Suspense" year, and the regulations prescribe that this Suspense year be spent on a course of study approved by the appropriate professor.

The course is an intensive one, having eighteen hours of lectures a week. Less than half of this time, however, is devoted to advanced engineering, the other subjects being Pure Mathematics, Law, Economics, and the Presentation of Technical Information.

Professor Kapp, who drew up the syllabus, stressed that his major aim was to start the student thinking like an engineer—and his idea of an engineer was a man who had a grasp, not only of his own work, but also of the position of the engineer in relation to society and to the rest of the world.

The course on law was a revelation. We had all imagined that the law was, if not an ass, at least a pompous old bore. But after the first lecture we realized that we had been quite wrong. It became clearer and clearer that the development of law was the development of human relations. Although points of particular interest to engineers were raised, our teachers stressed that it was most important to have a general idea of the scope and effect of the law, so that we would have a reasonable legal background.

More Lectures

The course on economics was also stimulating, but we felt that we could have done with more lectures. It is such a vast subject that two lectures a week were insufficient to carry us forward to the interesting subject of Applied Economics. We studied the principles of economics rather briefly: Money and Banking, Public Finance, and Financial Policy and briefly ran over the economic developments of the last quarter century or so.

The last subject of the course was the Presentation of Technical Information. In these classes we covered all aspects of the promulgation of knowledge, from logic to type-setting. We had a course of lectures on the practice of publishing and on the theory of exposition, from grammar to logic. Writing and the expression of ideas were forced upon us. Every fortnight we wrote a thousand words or so in answer to some questions on Presentation of Technical Information. In addition, we had Long Reports, averaging 5,000 words, which could be on any subject the student was interested in, provided it was approved.

We began the year with some resentment at the regulation which dictated so much apparently wasted time. This feeling has given away to alarm at the thought that so many engineers have been graduated without it. These things that we have been studying are the very stuff of the civilization we live in.

The greatest benefit of the course was that our minds received a tremendous stimulus. To know more and more theory about engineering was undoubtedly useful, but we felt that the engineer must know the world about him and his place in that world. The introduction to law and economics was a stimulus to read all the books that we could get hold of on economic problems and legal difficulties of the present time.

For the whole of this year we have had an inestimable advantage over all students in that we had not had to take any very strenuous examinations. Because of it, we have been able to spend a lot of time reading around the new subjects, writing as much as we felt like, and discussing amongst ourselves and with our teachers.

Reading Necessary

It is good to know that these extra subjects are to be introduced to all engineering students at this College under the new regulations, which increase the degree course by one year. But we are very sorry to hear that they are to become subjects in a qualifying examination, as students have to concentrate all their mental energy on passing. These new subjects demand copious reading if the skeleton given in the lectures is to be decently clothed. We do not know the solution; but we think that we have been fortunate to have been able to take this fascinating course with our major examinations past and passed. We hope, too, that other organizations will see fit to give their students such a course, and so turn out engineers, not better qualified technically, but better educated to take part in industry and life.

Robin F. W. Guard and A. P. Beale
Journal of The Engineers' Guild July, 1950.

NCSBEE—Oct. 9, 10, and 11. Chicago, Ill.

Missouri Society of Professional Engineers—Oct. 26, 27, and 28. Kansas City.

National Society of Professional Engineers—Board of Directors Meeting. Nov. 2 and 3. Little Rock, Arkansas.

Indiana Society of Professional Engineers—Annual Meeting. Dec. 1 and 2. Van Orman Hotel, Fort Wayne.

Oklahoma Society of Professional Engineers—Jan. 12, 13. Biltmore Hotel, Oklahoma City.

California Society of Professional Engineers—Annual Meeting. Jan. 19 and 20. San Francisco.

Texas Society of Professional Engineers—Jan. 25, 26, 27. Baker Hotel, Mineral Wells.

Ohio Society of Professional Engineers—March 29, 30, and 31. Toledo.

New York State Society of Professional Engineers—Silver Anniversary Convention and Annual Engineering Industries Exposition. May 10, 11, 12. Statler Hotel, New York, N. Y.

Speech

(*Continued from page* 30)

Tell jokes if you're not the type. If you can't even get a laugh out of your loving wife, there's no reason to expect one from a strange audience.

Deliver the last line of your speech as you're walking back to your seat. You'd be surprised how many speakers do this and detract from an otherwise excellent speech.

State your prejudices in your speech. Singling out a minority or other type of group for attack is a poor substitute for logical argument, and besides the audience may not share your ideas on the particular subject.

Betray your nervousness by an unconscious habit. You've seen speakers who continually drummed on the rostrum, twisted their notes, or fumbled with their tie. Think how it affected you.

Bellow in an attempt to be heard. Adjust your voice to the size of the room. Remember the average club or dining room is not the Hollywood Bowl.

Put your hands on the microphone if you're using it. It can stand by itself—so can you.

Pick your notes or manuscript up unless visibility is bad. You may give your shaking hands away.

Use cliches. Think of some fresh ways in which you can phrase the old tired expressions.

Look at the ceiling. Many speakers have the habit of looking anywhere in the room but at the audience, which is nerve-wracking for the listener. Look right at your audience. Single out people in various sections of the room to look at from time to time, so that the entire audience gets a chance to see you occasionally.

Be phony or patronizing to your audience. No one wants to be insulted by insincerity or addressed as though they were Mongolian idiots.

Just bear these few points in mind the next time YOU speak in public, and see if you don't feel and sound better. As an engineer you control the forces of nature—now control your audience. Get up and spread the good word about NSPE. If you follow the suggestions in this article you'll be glad you came and they'll be glad they asked you. "And now may I introduce . . . " Good luck . . . YOU'RE ON!

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